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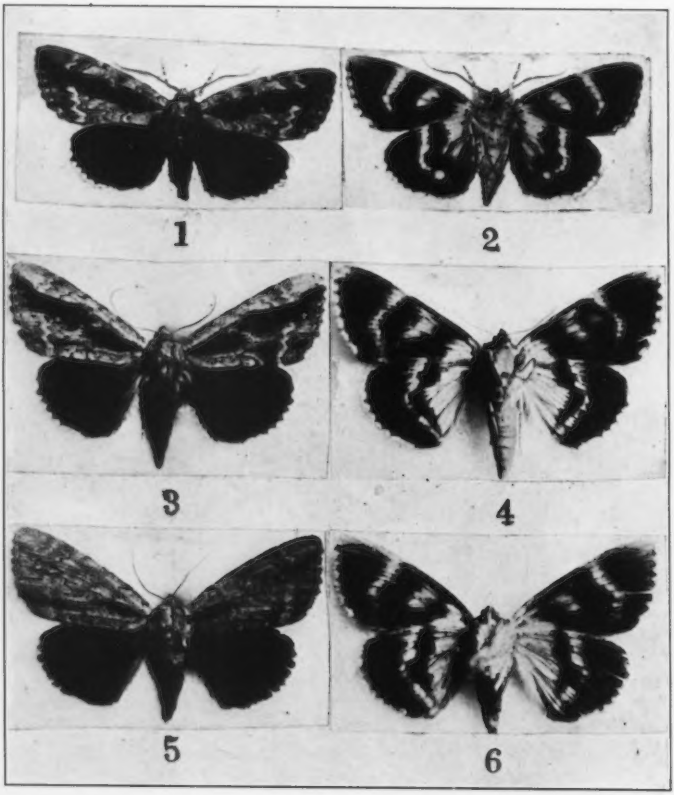

CATOCALAE—SCHWARZ.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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Recent Work on Catocalae: A new Variation, Aberration and Correction (Lep.).

By ERNST SCHWARZ, St. Louis, Mo.

(Plate X).

Catocala robinsonii Grote, var. **missouriensis** n. var. (Plate X, figs. 1 and 2).

There occurs a form of *Catocala robinsonii* a little larger than the typical form, in general appearance much like *Catocala angusi* var. *lucetta* in which the black shading on primaries is very similar to that of *lucetta*. In *missouriensis* this shade is even on both sides and not interrupted at the reniform and subreniform, reaching to W of the terminal line and continues from this point posteriorly in a V-shape to below apex. This part of the shade is not as prominent but more suffused.

This shading in *C. angusi* var. *lucetta* is not as even, more or less interrupted by the reniform and subreniform reaching nearly to the lunules 5 and 6. There is also a V-shaped extension above this point, which is of the same intensity as the other part of the shading.

Missouriensis has the fringes on hind wings white, whereas in *lucetta* they are of a dirty gray. The most distinctive characters are to be found on the lower surface of the hind wings and a glance at this will suffice to show that *missouriensis* is identical with the typical form of *robinsonii*.

Exp. 72 mm.

Four specimens of this abstract form were taken in 1913—two males in St. Louis County, Missouri, and one male and one female in Montgomery County, Alabama. Types in collection of George Hosenfeldt and E. Schwarz.

Catocala robinsonii was described by Prof. Grote in 1872 and it is surprising that such an extremely marked form could escape the detection of the collectors for such a long period. *Robinsonii* is one of the more common species of the genus and is remarkably constant in color and markings, in fact so much so that when a collector ever captures the var. *curvata,* he feels himself specially favored. *Curvata* is the form with a heavy basal dash and a curved shade from medium shade over reniform to beneath apex.

There also occurs an aberration in *Catocala angusi* var. *lucetta* (Plate X, Figures 3 and 4), with white fringes on hind wings which could, therefore, easily be mistaken for the above. The illustrations show the great similarity of the two. Here again the lower side guides us in determining their specific relation. These two forms are the most similar in the whole genus, as far as the upper surface is concerned. Two specimens were taken, one male and one female at Meramec Highlands, St. Louis County, Missouri.

Angusi var. *edna* (Plate X, Figures 5 and 6), proves to be the female form in this location. Out of 400 *angusi* taken thirty-eight were females all of the *edna* type, but none of the males possess the *edna* markings—this is the form with a heavy basal dash reaching to the reniform.

EXPLANATION OF PLATE X.

Figs. 1 and 2, *Catocala robinsonii* n. var. *missouriensis.*
Figs. 3 and 4, Aberration of *C. angusi* var. *lucetta.*
Figs. 5 and 6, *C. angusi* var. *edna.*

A new Halictine Bee from the Northern United States (Hym.).

By Marion Durbin Ellis, Boulder, Colorado.

There is a rather common *Halictus* of the northern and eastern States which has generally passed as *H. connexus* Cresson. Genuine *H. connexus* from Texas, received through the kindness of Mr. J. C. Crawford, proves to be distinct, so it becomes necessary to describe the so-called *H. connexus* as new.

Halictus subconnexus n. sp.

♀.—Length, 6 mm.; head and thorax blue green; abdomen black, with distinct metallic green reflections, the broad outer margin of each segment brown, shading to testaceous at the edge.

Facial quadrangle almost if not quite as broad as long, a little narrower below than above; vertex closely punctured; lateral areas of the face somewhat shiny, the punctures a little more crowded along the inner margin of the eyes than about the base of the antennae; supraclypeal area and clypeus more or less brassy, sharply lineolate, and with fine, scattered punctures; distal half of the clypeus shining black, margined with rather long, golden yellow hair; flagellum dark brown, almost black; cheeks not large or prominent.

Thorax with coarse, more or less confluent punctures on the sides; mesonotum rather broad, its surface finely but sharply lineolate, and with very fine, widely separated punctures, which are closer, but still not crowded, along the posterior margin; median groove distinct, parapsidal grooves short and somewhat indistinct; scutellum distinctly two-parted, the punctures crowded around its margins and along the median groove; truncation of the metathorax not entirely surrounded by the low sharp rim, which is well developed on either side near the base; basal area of the metathorax distinctly concave in the middle, the outer margin elevated into a short rounded rim, which truncates the middle third of the strong, simple but crooked plicae; plicae at the sides long and continued well onto the full, rounded, lateral areas, where they seem to converge toward the dorsal end of the rim at the base of the truncation; tegulae brown.

Wings hyaline, nervures and stigma testaceous, width of the second submarginal cell not more than one and one-third in the third.

Legs dark brown, tarsi reddish brown, hind spur of the hind tibia with four teeth.

Abdomen broad and shiny, the disc of the first segment impunctate; pubescence pale ochraceous, rather abundant on the legs, the postscutellum, the ventral surface of all, and the dorsal surface of the last

three abdominal segments, rather scanty on the rest of the thorax and head.

Hab.—Milwaukee, Wisconsin, one (=type) May 29, 1903, and one (cotype) April 27, 1905 (*S. Graenicher*). Forest Hills, Massachusetts, May 11, 1912 (*W. M. Wheeler*). Also from Garrison, New York (*Eleth Cattell*) and Niagara, New York, June, 1904 (*Cockerell*).

The specimens from Massachusetts were a little larger and more robust, and had the stigma and nervures a little darker than those from Wisconsin.

The males of this species and of *H. connexus* Cresson from Texas were examined and compared; each resembles the female of the respective species except for such differences as are due to sex. The males of the two species differ from one another in the same characters as the females.

Halictus subconnexus rohweri n. subsp.

Two specimens from Newington, Fairfax Co., Virginia, May 30, 1911 (*S. A. Rohwer*), appear to represent a distinct subspecies. They differ from the typical form mainly as follows: punctures on the disc of the mesonotum a little closer, although quite as fine as in the type; along the lateral and posterior margins of the mesonotum the punctures are closely crowded, and this is especially apparent at the posterior lateral angle, hindermost end of the parapsidal groove; wings distinctly brownish although translucent, stigma and nervures very dark testaceous; truncation of the metathorax sharper and broader with a low sharp lateral rim extending almost to the dorsal margin.

The group of species to which *H. connexus* Cresson and *H. subconnexus* Ellis belong is characterized by the sculpture of the metathorax and the large size of most of its species. The plicae on the basal area of the metathorax are usually very strong. The basal area of the metathorax has a short, sharp rim which truncates its middle plicae but not the more lateral ones, and the truncation of the metathorax is more or less completely bounded by a low sharp rim. In the following key to this group the species are arranged in a series according to the coarseness of the punctures on the mesonotum.

A. Punctures of the mesonotum coarse or rather coarse.

B. Punctures very deep and coarse, wings somewhat brownish, tegulae not punctured.

C. Tibiae and tarsi rather light brown, wings very slightly brownish; sides of all the abdominal segments, except the first, with triangular patches of short, buffy hair; 6.8 mm. Nebraska .....*H. bruneri* Crawford

CC. Legs black; wings distinctly brown; discs of abdominal segments 3 to 5 and sides of 2 with thin yellowish-white pubescence; 7 mm. Widely distributed.

H. cressoni Robertson

BB. Punctures only moderately coarse; wings not brownish.

D. Facial quadrangle almost square; tegulae with fine scattered punctures, not making the surface opaque; wings ample, hyaline, stigma and nervures dilute brown; 7.5 mm. Eastern States. .....*H. nymphaearum* Robertson

DD. Facial quadrangle longer than broad, distinctly narrowed below; tegulae impunctate; wings more or less milky white, stigma and nervures testaceous; 5 to 6.5 mm. Widely distributed. .....*H. albipennis* Robertson

AA. Punctures of the mesonotum fine and scattered; facial quadrangle very little if at all longer than broad.

E. Abdomen without metallic reflections; mesonotum shiny, or with but very fine lineolations.

F. Facial quadrangle broader than long, clypeus short, scarcely reaching below the eyes; mesonotum shiny, the punctures fine but not widely separated; tegulae rufo-testaceous; wings hyaline, the nervures and stigma pale testaceous; abdomen dark brown with short grayish pubescence; 7.5 mm. Texas.

H. connexus Cresson

FF. Facial quadrangle almost square, clypeus produced about two-thirds of its length below the eyes; mesonotum shiny, the lineolations very fine or absent; punctures a little closer than in *H. subconnexus* Ellis but finer than in any other species of the entire group; abdomen black, shiny and glabrous; wings slightly brownish, stigma and nervures reddish brown; 7 mm. Wisconsin. .....*H. nigroviridis* Graenicher

EE. Abdomen greenish or with very strong metallic reflections; mesonotum finely and sharply lineolate, with very fine and widely separated punctures; the last three abdominal segments covered with a thin ochraceous pubescence; tegulae brown.

G. Wings hyaline, stigma and nervures testaceous; 6 mm. Widely distributed. .....*H. subconnexus* Ellis

GG. Wings brownish; 6.5 mm. Virginia.

H. subconnexus rohweri Ellis

The specimens upon which this paper is based are in the collection of Professor T. D. A. Cockerell, to whom the writer is indebted for them and also for direction and help in this work.

Two new Silphids (Col.).

By (the late) FREDERICK BLANCHARD.

The two new species of *Choleva* in the Horn Collection bearing my Mss. names of *gratiosa* and *horniana,* are separated as follows:

Thorax and elytra coarctate; antennae with joints four and five subquadrate, fourth a little longer, sixth slightly wider than long, longer than the eighth, which is short transverse; male hind trochanters toothed; fifth ventral female entire. *clavicornis* Lec.

Sides of thorax and elytra nearly continuous; antennae with joints four to six transverse, gradually wider, sixth equal to eighth; fifth ventral of the female emarginate at middle of apex; hind trochanters simple in the male. Tyngsboro, Massachusetts, V. 19. **horniana** n. sp.

Gratiosa and *alsiosa* have the antennae longer than in the other species, third joint longer than the second, fourth as long as second; fifth ventral female entire.

Eighth joint of antennae longer, equal to the sixth or nearly so; anterior tibiae of male more slender, not curved or sinuate within; tarsi narrow in the same sex; elytra paler. Rangeley Lake, Maine, Aug. 1st. **gratiosa** n. sp.

Eighth joint of antennae very short. anterior tibiae of male stout, curved; front tarsi broadly dilated; first joint of middle tarsi wider; color at maturity piceous or black. *alsiosa* Horn.

[The above is an extract from a letter in reply to a request for information pertaining to these species.

The occurrence here at Chestnut Hill, Philadelphia, Pennsylvania, of both these *Silphids* and their incorporation under the manuscript names in a list of the Coleoptera of Pennsylvania soon to be published, makes it advisable to place the above descriptions on record.—CHAS. LIEBECK.]

Studies on Costa Rican Odonata.

VI. The Waterfall-Dwellers: The Transformation, External Features and Attached Diatoms of Thaumatoneura Larva.

By PHILIP P. CALVERT, PH.D., University of Pennsylvania, Philadelphia, Pa.

(Plate XI)

In number V* of these Studies we have described the adults of *Thaumatoneura* and some of their habits. While we observed motions on the part of females which, by analogy, we interpreted as those of oviposition, we were never able to detect the eggs or to obtain the young larvae from pieces of roots and of moss in which we supposed eggs to have been placed. We were more successful with older larvae. On June 26, 1909, a few were found in among the roots that hung in front of the rock of the farther, or lower, waterfall at Juan Viñas, where they were constantly bathed in the water. On June 27, 1909, while hunting over the rocks at the foot of the higher, or nearer, waterfall, we found a large larva of the same kind (No. 4 of the list on page 300) "crawling up out of the water on to a big rock. This being a hopeful indication of near transformation we secured him and carried him back to the cabin where we rigged up an ingenious and home-like stream for him in the fixing dish aided by a big stone and a bottle." All these went to our headquarters at Cartago but all died before they yielded the wished-for imago. We write of them now as *Thaumatoneura* larvae by reason of proof acquired ten months after their discovery. *Then* we had only the presumption based on their occurrence at the same localities with the winged individuals. On August 2, at the nearer waterfall, we found an exuvia which we took to be that of *Thaumatoneura*. Search for larvae at the farther waterfall on December 2 was unsuccessful. On March 23 and 26, 1910, larvae were not rare on the rock face of the nearer waterfall where it was kept wet by the spray and, on the 26th at least, where there was a thin layer of organic mud on the rock surface. A visit to the same fall on April 24 yielded twenty-two

* Ent. News, xxv, pp. 337-348. Oct., 1914.

exuviae, but none of them had an imago with it. They were chiefly on the rock face of the waterfall but in spots more or less protected from the falling water. Smaller larvae than those indicated by the exuviae were crawling over the rocks.

This waterfall was nearly vertical in its descent from the top of the canyon of the Rio Reventazon but, at about one hundred feet above the railroad track (which occupied à narrow ledge cut out of the cliff face), the water usually disappeared beneath a mass of boulders and flowed underground through loose soil to reappear on the slope far below the track. Up over these boulders we climbed to the foot of the actual fall with its vertical rock face. The amount of water over and among the boulders varied with the rains. On April 26 we ascended with more difficulty than usual, owing to the greatly increased flow of water which covered many of the usual footholds. Mrs. Calvert, who was in advance, found a large larva on the wet slippery face of the fall itself in such a position that a small projection above it gave it shelter from the direct spray. This larva we saw transform. She noted at the time: "Unlike other dragonflies we have watched transform, the wings while they hang limp and wet, in fact until they are full size and dry, are green. The body of the dragonfly is brown and green and as the creature hangs on the rocks, the body and wings giving the little trembling jerks that usually accompany the growing or 'filling out' of a transforming dragonfly, the likeness to a green leaf on a stem trembling in the breeze is very marked. There is a great deal of a small-leaved *Commelina* on the face of the fall as well as some delicate grasses, both of a bright pea-green, and we ourselves frequently confused the dragonfly we wanted to watch with one or other of these if we happened to move our eyes from it. It certainly seems to be a good case of protective coloring." Her record of the progress of transformation follows:

10.30 A. M. Head and thorax free dorsally.

10.35. Antennae and head entirely free, wings beginning to be withdrawn.

10.37. Front wings free.

10.37.40. Hind wings and first legs free.

10.38.20. Second legs and abdominal segments 1-3 out.

10.39.30. Third legs out, wings bright yellow, front edges and principal veins black, eyes almost black, body pale green chiefly. Resting period until

10.49, when imaginal legs grasped larval skin; very slender tracheal linings still connect exuvia and thoracic spiracles; width of head of adult much wider than head of exuvia.

10.59. Abdominal segments 4 and 5 free.

11.00. Sixth abd. seg. free.

11.00.10. Seventh; 11.00.15. Eighth; 11.00.40. All abdominal segments free. Wings still of exuvial length. Abdomen pale green, four longitudinal blue-brown lines on dorsum and spot on middle of lateral carina of each abdominal segment, appendages pale yellowish green. Following bluish-brown, labrum, clypeus, vertex, marks on middle prothoracic lobe, paramedian line and broad antehumeral stripe on mesepisternum, posthumeral stripe, double line above metastigma.

11.03. Wings lengthening, hind to end of abdominal segment 5.

11.11. Left hind wing as far as hind end of abdominal segment 8, the other three wings to hind end of abd. seg. 7.

11.13. Left hind wing to hind end of abd. seg. 10, the other three wings to segment 8. All wings pale pea green, veins blackish.

11.16. All wings longer than body plus appendages and subequal.

By 1 P. M. the green color had left the wings—how long before we do not know.

This (male) eventually colored as *Thaumatoneura inopinata* and, with other specimens, was left to dry in a paper bag, from which it was set free by some meddler on April 28 and so lost. Its exuvia, however, was carefully preserved and labeled at once. On the same morning and at the same place another larva was found transforming and yielded a male of *Th. pellucida** so that our previous surmises as to the identity of these larvae were established as definite facts.

On April 30 we went again toward the higher waterfall but, when we reached the mass of boulders below it, found that a

* In discussing the possible male dimorphism in *Thaumatoneura*, reference was made (Ent. News, xxv. p. 345) to similar phenomena in other animal groups. Since that article was published, Dr. T. S. Painter, of Yale University, has called my attention to the dimorphism of the males of *Maevia vittata*, a jumping spider. See his paper in Zool. Jahrb. Abth. Syst. Geogr. Biol. xxxv, pp. 625-636, 1913.

landslide had occurred changing their positions very greatly. We ascended a short distance to reconnoitre and saw that some small trees had fallen, blocking our usual path, while rocks larger than one's body had been rolled down, many of them being quite unstable. In fact the change since the 26th, when we were here, was far greater than at any time during the preceding ten months in which we had known this fall. We concluded not to ascend on account of the risk involved and went on to the farther waterfall where two good-sized *Thaumatoneura* larvae were obtained, one of which transformed as a female before we left the fall. We subsequently learned that on April 28, when we were in a different locality, two distinct falls of rock, with the sound of crashing of tree branches, were heard in the direction of the higher waterfall, accompanied by the odor of newly-disturbed forest earth. It was our good fortune that this landslide did not occur until after our ten months' search had been crowned with success and we could smile at the efforts of the Genii of the Fall to veil the secret of *Thaumatoneura* from us.

To make our larval record complete—one was secured on May 1 at a third waterfall, near the iron bridge over the Rio Reventazon, 800 feet below the railroad.

The habit of dwelling in and around waterfalls and cascades which we have described for *Thaumatoneura,* larva and adult, and which is also the habit of *Argia talamanca* associated with it, does not appear to have been mentioned for any other Odonata. Yet it is likely that such a habit will be found to exist in some other members of this group of insects, especially in the tropics of the Old World, where topographic and climatic conditions similar to those of Costa Rica prevail. In countries where frost occurs the low temperatures incident to this phenomenon may prevent the survival of Odonate larvae in waterfalls of small volume, where the water is spread out in a sheet of but a few centimeters in depth, as is the case in those falls which *Thaumatoneura* inhabits. On the other hand, the force exerted by falling water in *large* volume may be too great to permit Odonate larvae dwelling therein.

Diatoms Attached to the Larvae.

While examining the larvae and exuviae of *Thaumatoneura* the great number of diatom shells attached to them was very apparent. A single leg, which had been detached from an exuvia, was sent to Prof. Albert Mann, Custodian in charge of the Diatom Collection of the U. S. National Museum at Washington, who has sent the following remarks on the diatoms adhering to this member:

The species discovered on this very minute quantity of material are as follows:

Achnanthes ventricosa Ehr.
Cocconeis placentula Ehr. and variety.
Cymbella ventricosa Ag.
Epithemia gibba (Ehr.) Kg.
E. gibberula (Ehr.) Kg.
E. zebra (Ehr.) Kg. and variety.
Eunotia monodon Ehr.
Gomphonema parvulum Kg.
Navicula viridis Kg.
N. oblonga Kg., var.
N. n. sp.
Nitzschia sp.
Pleurosigma sp.
Synedra ulna (Nitz.) Ehr.

Of the foregoing, *Epithemia zebra* is by far the most frequent, *Gomphonema parvulum* next, *Synedra ulna* next, *Achnanthes ventricosa* next, and the others rather infrequent. The unnamed *Nitzschia* and *Pleurosigma* afforded only one specimen each and their position was such that I was unable to correctly identify them, but I am quite confident that they are not new. The new *Navicula* is extremely small and very delicately marked, and I fortunately have two specimens.

I should say that there were at least 500 diatoms on the small leg of this larva. The most of these are forms that grow attached by a transparent jelly-like stipe; but several of them are free and free-moving—for example, the different species of *Navicula.*

The finding of these forms on this aquatic larva is of importance because it helps to throw light upon a difficult problem connected with the distribution of diatoms. It has always been more or less of a mystery how isolated pools and bodies of water of recent origin become stocked with a rather extensive diatom flora and frequently within a very short period of time. Little is known regarding the spore formation of diatoms, investigations in this respect having been confined almost exclusively to pelagic marine forms, such as *Rhizosolenia.* In most of the genera no spore formation has ever been discovered. Some light has been thrown upon this distribution by supposing these organisms are carried on the feet of wading birds, but this method of transportation is plainly very inadequate. If, however, we add to this transportation by aquatic insects, many of which have the power of flying, we have

a means of transportation that goes a long way to explaining the sudden appearance of large numbers of diatoms in new localities.

I therefore look upon this rather abundant flora on the minute leg of this aquatic insect as of some scientific importance. Of course, in this case the power to fly does not exist until a later period of development, but many of the water beetles and other insects are doubtless coated with living diatoms in the same way.

A reference to Van Heurck's *Treatise on the Diatomaceae* (English translation by Baxter, London, 1896) shows that most of the diatoms listed above, and especially those of most frequent occurrence, are "common everywhere," at least throughout Europe and, as they occur in Costa Rica also, probably throughout the world. It is of interest, moreover, to compare the data on the diatoms found attached to *Thaumatoneura* larvae with those relating to the diatoms enumerated, as occurring on the nymphs of various Odonata of the United States, by Miss Lyon in the NEWS for January, 1915, pp. 4-6.

DESCRIPTION OF THE LARVAE.

Material Studied. Larvae in alcohol:

(*a*) From hanging roots in farther waterfall, Juan Viñas, 3300 feet (1000 metres), June 26 and 27, 1909. Nos. 1, 2, 4 and 5, males, No. 3, female. (For No. 4, see Pl. xi., figs. 2, 3.)

(*b*) From nearer waterfall, Juan Viñas, 3400 feet (1036 metres), March 23 and 26, 1910. Nos. 6 to 8, females. (For No. 8, see Pl. xi, fig. 1.)

(c) From the same waterfall, April 24, 1910. No. 9, ♂.

[All of these died in attempted rearing. The following *Thaumatoneura* larvae are recorded in our rearing list and, as there is no entry of their having died, were presumably lost in the earthquake at Cartago, May 4, 1910:* No. 76 (one), No. 77 (one), No. 78 (two) all from the nearer waterfall, Juan Viñas, March 26, 1910.]

Exuviae:

♀ Nearer waterfall, as above, Aug. 1, 1909.

♂ *inopinata* same locality. April 26, 1910. (Watched in transformation.

♂ *pellucida* same locality, April 26, 1910. (Watched in transformation.)

17 ♂ ♂, 9 ♀ ♀ same locality, April 24 and 26, 1910, in various degrees of preservation.

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*See Ent. News, xxi, p. 336. July, 1910.

The exuvia of April 30 was probably lost in the earthquake.

The following description is based on all the larvae studied and on the two exuviae of *inopinata* ♂ and *pellucida* ♂. The differences shown by the larvae of various sizes are given in the table on page 304. As has already been stated,* I have not been able to find any differences between these two exuviae other than those due to injuries sustained by the larvae previous to transformation.

Head shallowly concave posteriorly. Compound eyes and their ommatidial lenses very distinct; in most of the alcoholic larvae the dorsal surface of the eye below the chitin showing dull greenish-blue with 9 to 11 diverging darker streaks which radiate from a point caudad to the inner posterior dorsal angle of the eye. Ocelli indicated by three smoother patches amid the otherwise finely wrinkled and finely spinulose dorsal surface of the head. Nasus of the larvae with four pale streaks extending from its superior to its inferior margin, two of them submedian, the other two lateral, right and left. Labrum hardly notched on its free margin, which is obscured by matted hairs in the exuviae, especially at each side where, viewed from above, they form a small tuft. Edges of the genae which bound the eyes posteriorly and inferiorly with a row of closely-set spinules.

Antennae 7-jointed, decreasing in diameter from 1 to 7, lengths of the joints in larva No. 4: (1) .64, (2) .48, (3) .4, (4) .224, (5) .224, (6) .16, (7) .064, total 2.192 mm.

Mandibles stout. Right mandible (Pl. XI, figs. 4, 4*i*) at its apex with four teeth, of which the most dorsal or foremost is usually the widest, the second the smallest, the third and fourth longer than the other two, the fourth longest and having on its inner ventral edge a small basal denticle; on the inner surface, proximal to and distinctly separated from these apical teeth is a shorter, tapering and curved process terminating in an acute apex and bearing a minute anteapical posterior denticle. Left mandible (Pl. XI, figs. 5, 5*i*) with apical teeth similar to those of the right, but the foremost (most dorsal) tooth has a small dorsal denticle (except in larva No. 1) and the fourth (most ventral) tooth has no basal denticle and in some is no longer than, or even not quite as long as, the third tooth; the process on the inner surface is much larger antero-posteriorly than that of the right side, forming when viewed from below (the mandibles being open) a crescent-shaped ridge whose edge is crenulate or denticulate and terminates at both anterior and posterior ends in a slender acute spine; the concavity of the crescent is proximal. These processes of the inner surface of each mandible appear to correspond with the inner branch of the mandible of the larvae of *Cora*.† The lateral surface of

* Ent. News, xxv, p. 345. Oct., 1914.

† *Cf.* Ent. News, xxii, p. 52, pl. II, fig. 16.

the base of each mandible is armed with small spinules. Near the middle of the ventral face is a row or group of about ten setae.

Maxillae similar to those of *Cora*,† the attenuate tip of the inner lobe with one immovable tooth and two more proximal movable spines. There is a membranous supralingua between each maxilla and the hypopharynx proper, not visible in the exuviae.

Labium (Pl. XI, figs. 6, 8) when at rest reaching caudad to the level of the bases of the prothoracic legs but not as far as that of the hind ventral prothoracic margin. Median (mental) lobe with the distal margin 1.2 times as wide as its mid-longitudinal length, produced distinctly distad in the middle and there bilobulate, but the emargination which separates the lobules not reaching proximad as far as the level of attachment of the lateral labial lobes; a minute tooth on the inner dorsal surface of each lobule a short distance within (proximal to) the distal margin and a greater distance from the median line; this is *t** of the larva of *Cora* as shown in fig. 28, pl. III, *l. c.*, and the "pronounced tooth . . . on the sutural line" of the labium of larval *Lestes* (BUTLER)‡; distal margin minutely crenulate for its entire length, a very short seta between each crenulation and the next, lateral margins spinulose near the articulations of the lateral labial lobes; mental setae usually absent, but two pairs of short setae have been observed on each side of and near the emargination separating the two lobules of the distal margin. Lateral labial lobes spinulose laterad near base, without setae, each with a long curved tapering terminal spine ("movable hook") and two stout distal teeth, both shorter than the terminal spine, the inner (mesal) of the two longer than the other; three distal teeth exist in the larva of *Cora*, the most internal of which appears to be absent in *Thaumatoneura*.

Dorsal surface of *prothorax* sharply defined on all sides by a carina having a hexagonal outline (counting the curved anterior and posterior edges as but one each). Propleuron bounded inferiorly by a carina ending anteriorly in a spinulose tubercle. Mesostigmata very distinct, on transverse tubercles, open in larva No. 4 and probably in the exuviae, not open in the other larvae. Mesopleuron with a marginal carina. Metastigmata indicated, small, apparently not open.

Legs moderately long, moderately slender, each coxa with a superior spinulose tubercle, three tarsal joints, two curved simple tarsal claws, empodium present.

Abdomen triangular in cross-section, but the mid-dorsal angle rounded, each segment wider than high; of 10 complete segments which decrease in width very gradually and slightly from 1 to 5, more markedly from 6 to 9. Segment 1 with a short transverse row of setae

†*L. c.* p. 53, pl. III, figs. 29, 31.

‡Trans. Amer. Ent. Soc., xxx, p. 114, 1904.

on the mid-dorsum at about three-fifths of the segment's length; on 2 to 5 this row is represented by two separated patches of setae, one on each side of the mid-dorsal line and at the same part of each segment's length; on the dorsum of 6 to 10 are also similar setae but apparently, in most specimens, not as regularly arranged as on 1 to 5; in addition to the setae 1 to 10 bear longer, softer hairs. Hind dorsal margin of 10 with a wide shallow median emargination. Grooves separating the sternites of 1 to 9 from the inflexed ventral parts of the tergites more distinct in the exuviae than on the larvae, in some of which latter they are very slightly marked.

Caudal "gills" three, evidently much subject to injury and regeneration, when fully developed each two-jointed, the first joint thicker and higher than the second; median or mid-dorsal gill (Pl. XI, figs. 9, 9*d*, 9*v*) with a mid-dorsal and a mid-ventral longitudinal carina on the first joint, the mid-dorsal carina being more convex and armed with shorter, stouter spines, while the mid-ventral carina is less convex and bears longer, more slender hairs. Each lateral gill (Pl. XI, fig. 7) with two longitudinal carinae on the mesal surface of the first joint, one of which is dorsal the other ventral; between these two carinae is thus a longitudinal trough or valley; in profile view the dorsal surface is more convex than the ventral. The second joint in all three gills is subcylindrical. When only one joint is present in any of these three gills it is probably a case of incomplete regeneration after injury. The surfaces of the three gills bear many soft hairs in addition to those on the carinae but can not be described as densely hairy.

Cercoids (superior appendages of the imago) slender, tapering, curved ventrad and applied closely for their entire length to the hind surface of abdominal segment 10.

♂. Rudiments of the copulatory apparatus visible on the ventral side of abdominal segment 2 in the larger larvae and in the exuviae. Gonapophyses on 9 represented in the larger larvae by two slightly elevated subcircular areas separated from each other by about the diameter of one of them, each bearing at its hind end 1 to 3 posteriorly-directed spines.

♀. Gonapophyses of abdominal segments 8 and 9 of variable length as indicated in the table on page 304.

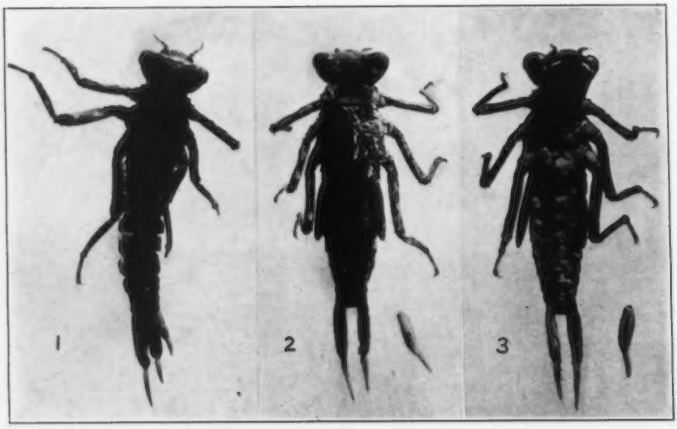
The larvae preserved in alcohol have the body ochre with black markings.

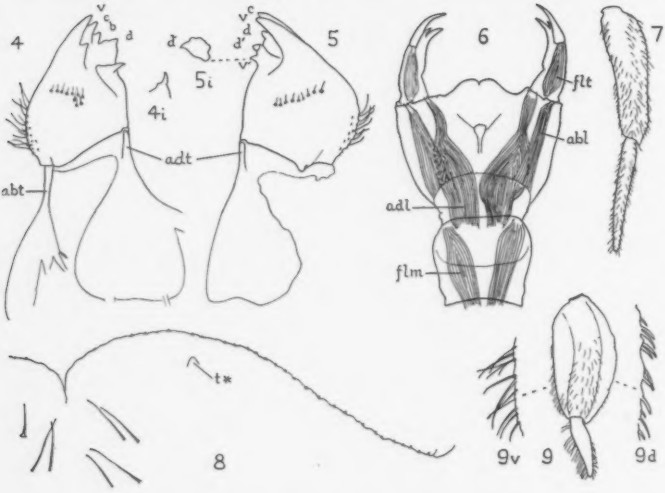
Some of the internal organs of these larvae will be considered in the next number of these Studies.

TABLE SHOWING DIFFERENCES BETWEEN THE LARVAE AND EXUVIAE OF THAUMATONEURA ARRANGED ACCORDING TO SEX AND SIZE

All *measurements* in millimeters	Larva No. 1, ♂	Larva No. 2, ♂	Larva No. 9, ♂	Larva No. 5, ♂	Larva No. 4, ♂	Exuvia *inopinata* ♂	Exuvia *pellucida* ♂	Larva No. 3, ♀	Larva No. 6, ♀	Larva No. 7, ♀	Larva No. 8, ♀	Exuvia April 26, ♀
Total length	14.5	17.	23.	23.5	31.	?	34.	20.5	22.	?	26.5	34.
Length excluding caudal gills	10.	12.	15.	16.5	21.5	26.5	27.	15.5	17.	17.5	18.	24.5
Length of abdomen excluding caudal gills	5.	6.7	7.5	10.	11.	16.	15.	8.	9.8	10.5	11.75	14.5
Width of head at the eyes	3.	4.	5.25	4.	6.3	6.5	6.8	4.5	?	4.5	5	6.1
Width of abdomen at sigment 3	2.5	3.3	4.	3 5	?	3.25	4.5	3.5	?	4.	4.	4.2
Length of third femur	2.5	3.5	4.5	3.5	5.3	5.5	6.	4.	4.2	4.2	4.75	5.9
" " tibia	2.75	4.	5.5	4.	6.	6.	6.5	4.5	4.5	4.6	5.5	6.4
Width of labium at distal margin of median lobe	2.	2.74	3.5	2.8	4.63	4.45	4.7	3.07	3.33	3.42	3.71	4 3
Number of crenulations on one-half of the distal margin of median labial lobe	21	27(R),24(L)	31	24	35	34	34	29	31	30	31	36
Front wing pads reach to	one-half metathorax	not to hind edge meta-notum	five-sixths abd. seg. 3	hind edge metanotum		hind edge abd. seg. 3	hind edge abd. seg. 4	one-half abd. seg. 1	hind edge abd. seg. 1	one-third abd. seg. 1	hind edge abd. seg. 2	five-sevenths abd. seg. 4
Hind " "	front edge ab. seg. 1	hind edge abd. seg. 1	five-sixths abd. seg. 4	hind edge abd. seg. 1	?	middle abd. seg. 4	hind edge abd. seg. 4	middle abd. seg. 2	hind edge abd. seg. 2	one-half abd. seg. 2	middle abd. seg. 3	two-sevenths abd. seg. 4
Length of first joint, median caudal gill	2.	2.5	—	3.	6.	—	3.5	3.	3.5	—	3.25	3.2
" second " " "	—	1.5	—	1.5	—	—	2.5	2.	1.5	—	1.75	2.2
Total length median caudal gill	2.	4.	—	4.5	6.	—	6.	5.	5.	—	5.	5.4
Length of first joint, right lateral caudal gill	2.	2.	—	4.	5.	—	5.	3.	—	—	2.25	4.7
" second " " " " "	1.	1.5	—	3.	3.5	—	6.	2.	—	—	1.25	4 9
Total length " " " "	3.	3.5	—	7.	8.5	—	11.	5.	—	—	3.5	9.6
Length of first joint, left " " "	3.	3.	4.	4	5.25	2.5	4.5	—	—	—	4.	4.3
" second " " " " "	2.	2.	4.	3.	4.75	2.	4.	—	—	—	4.	4.1
Total length " " " "	5.	5.	8.	7.	10.	4.5	8.5	—	—	—	8.	8.4
Rudiments of copulatory apparatus on abdominal segment 2, ♂	—	—	—	—	+	+	+					
Rudiments on gonapophyses on abdominal segment 9, ♂	—	—	(+)	—	+	+	+					
Gonapophyses of abdominal segment 8, ♀, reach to								one-half abd. seg. 9	two-thirds abd. seg. 9	less than half abd. seg. 9	beyond abd. seg. 9	six-seventhsabd. seg. 10
Median gonapophyses of abdominal segment 9, ♀, reach to								three-fourths abd. seg. 9	four-fifths abd. seg. 9	three-fifths abd. seg. 9	one-half abd. seg. 10	not visible
Outer gonapophyses of abdominal segment 9, ♀, reach to								hind edge abd. seg. 9	hind edge abd. seg. 9	six-seventhsabd. seg. 9	three-fifthsabd. seg. 10	six-seventhsabd. seg. 10

Outer gonapophyses of abdominal segment 9, ♀, reach to								abd. seg. 9	abd. seg. 9	abd. seg. 9	abd. seg. 10	abd. seg. 10





THAUMATONEURA LARVA—CALVERT.

EXPLANATION OF PLATE XI.

All the figures are of *Thaumatoneura* larvae or of parts thereof.

Figs. 1 to 3 are from photographs by Mr. H. A. Walters, of alcoholic specimens.

Fig. 1, larva No. 8, ♀, dorsal view. x 2.

Figs. 2, 3, larva No. 4, ♂, dorsal and ventral views respectively x 1.8. The median caudal gill is detached and lying on its side.

Figs. 4 to 9 are from camera drawings made with a binocular stereoscopic, or a compound, microscope; figs. 4 to 6 and 8 are from larva No. 4, ♂.

Figs. 4, 5, ventral views of the right and left mandibles respectively of larva No. 4, ♂. *d, b, c, v,* the apical teeth, *d* the most dorsal, *v* the most ventral; d^1 the most dorsal, v^1 the most ventral, spine of the inner process of the left mandible; *abt, adt,* tendons of the abductor and adductor muscles respectively. x 12.

Fig. 4*i*, curved inner process of the right mandible viewed from the base of the mandible to show the minute ante-apical denticle.

Fig. 5*i*, outline of the end view, or mesal surface, of the inner process of the left mandible.

Fig. 6. Labium, dorsal surface. *abl* abductor, *adl* adductor of the lateral lobe; *flm* flexor of the mentum, *flt* flexor of the terminal or movable hook. x 5.

Fig. 7. External view of left lateral gill of larva No. 5, ♂, drawn *in situ* on the larva. x 5.

Fig. 8. Right half of the distal margin of the median labial lobe, *t** tooth. x 53.

Fig. 9. Left profile view of the median caudal gill of larva No. 6; 9*d* a small piece of the dorsal edge of proximal joint of the same gill; 9*v* a small piece of the ventral edge of proximal joint of the same gill. Fig. 9, x 5, 9*d* and 9*v*, x 30.

Note on the Bombyliid Genus Rhabdopselaphus Rondani (Pseudogeron Cress.) (Dip.).

In a previous issue of this Journal* I published a paper on a supposed new genus (*Pseudogeron*) of this family allied to *Geron*. Since then Prof. Aldrich has called my attention to the possible synonymy of my genus with *Rhabdopselaphus* Rond., (Bul. Soc. Ent. France, 1886, p. ciii), based on Dr. Williston's note on page 389 of his *Manual* (third edition). I regret that I had not studied the Manual more thoroughly, for I was naturally led astray by Rondani's mention of three submarginal cells in his generic description. Dr. Williston, who has examined the type of *Rhabdopselaphus,* notes that it has only two submarginals. This fact, with the form of the antennae and palpi, seems to be sufficient proof of the synonymy. My name for the genus must therefore be replaced by *Rhabdopselaphus* Rondani with *R. mus* Rond. =*Geron capax* Coq. as the type species. It is quite evident from the description that *R. mus* is synonymous with *Geron capax* Coq. This genus is closely allied with *Oligodranes* Lw. (1844) and *Apolysis* Lw. (1860). From the former it differs in the form of the palpi which here have the terminal joint very long, this being the only one visible; also in the slightly different third antennal joint. From the latter it differs in the presence of the complete discal cell.—E. T. CRESSON, JR., Academy of Natural Sciences of Philadelphia.

*Ante page 200.

Records of Orthoptera from Newfoundland.

By MORGAN HEBARD, Philadelphia, Pa.

In a recent trip to Newfoundland, Mr. G. P. Englehardt collected a number of specimens of Orthoptera. Through the kindness of Mr. Charles Schaeffer we are now able to record this material, the first series of the Order collected on that island, which is the property of the Museum of the Brooklyn Institute of Arts and Sciences.

ACRIDIDAE.

TRYXALINAE.

Chorthippus curtipennis (Harris). Cape Ray, Nfd., VIII, 17, 1912, 1 ♂, 1 ♀.

These specimens are short-winged and both have the sides of the head, lateral lobes of the pronotum and the pleurae, dark green.

Mecostethus gracilis (Scudder). Cape Ray, Nfd., VIII, 17, 1912, 1 juv. ♂. Port aux Basques, VIII, 1912, 1 juv. ♀.

OEDIPODINAE.

Circotettix verrucullatus (Kirby). Port aux Basques, Nfd., VIII, 1912, 2 ♂, 3 ♀.

LOCUSTINAE.

Melanoplus fasciatus (Walker). Stephenville, Bay St. George, Nfd., VIII, 1912, 1♀. Cape Ray, Nfd., VIII, 17, 1912, 2♂, 2♀. Port aux Basques, Nfd., VIII, 1912, 5♂, 4 ♀, 1 juv. ♀.

These specimens are all very robust for the species and are short-winged. None show the brilliant type of coloration sometimes found in the species.

Melanoplus femoratus (Burmeister). Port aux Basques, Nfd., VIII, 1912, 1♂.

This specimen is brilliantly colored, with caudal tibiae and tarsi bright nopal red.

TETTIGONIIDAE.

STENOPELMATINAE.

Ceuthophilus terrestris Scudder. Humber Mouth, Bay of Islands, Nfd., VII, 1912, 1 juv. ♂. Spruce Brook, Nfd., VIII, 10 and 16, 1912, 1 ♂, 2 ♀. Stephenville, Bay St. George, Nfd., VII, 14, 1912, 1 juv. ♂.

The adults recorded above are very large for this species. Length, of body, ♂ 15.5, ♀ 14.2 and 15.; of caudal femur, ♂ 14., ♀ 13. and 14.; of caudal tibia, ♂ 14.8, ♀ 13.9 and 15.1 mm.

Coleoptera found in the Vicinity of Meriden, Connecticut.

By HARRY L. JOHNSON, South Meriden, Conn.

For several years the writer has been greedily watching the columns of ENTOMOLOGICAL NEWS for some list of the beetles of Connecticut but as yet he has not been rewarded. As I have collected in Connecticut for several years and now have a list of some 300 species of Coleoptera taken in this vicinity, I am sending it to the NEWS with the hope that it will give added interest to those who are lucky enough to enjoy life in this State and enable outsiders to compare the lists of other States with those of Connecticut.

During the Summer of 1914 the writer built a large Lepidoptera breeding cage about 6 x 6 x 7 feet high, which was enclosed with common wire netting such as used for screen doors, etc. This cage was located to the north of a strip of land which was plowed immediately after the erection of the cage, and as the wind was strongly south on that day, the cage became a veritable beetle trap. Hardly a minute elapsed in which some unlucky beetle was not blown against the sides of the cage and held there by the wind while I came to the rescue with the cyanide bottle. About fifty species were secured in this way, among them being *Hylotrupes ligneus* and *Geotrupes splendidus*. Over 100 specimens of *Phytonomus meles* were secured on the sides of this trap. The writer is now hoping that the wind will be in the same direction when the land is turned over this year.

The following list of Coleoptera is intended to form a basis upon which future lists of Connecticut beetles may be added, and the writer hopes that entomologists from other parts of Connecticut will come forward with species to add to the list. As about fifty unidentified species are now in my hands, I hope to be able to add some species myself before the year is over.

Family CICINDELIDAE.

Cicindela sexguttata Fab. A common species. Occurs without spots and also with two, four and six spots.

Cicindela purpurea Oliv. Found commonly both spring and fall. Occurs in meadows and is easily mistaken for a grasshopper in flight. Have taken one green specimen of this species.

Cicindela repanda Dej. Most common species of the family.

Cicindela repanda var. **12-guttata** Dej. Taken sparingly on railroad track during season of 1914.

Cicindela vulgaris Say. Taken along sandy places in company with *C. repanda.*

Cicindela formosa generosa Dej. Taken sparingly along roadsides.

Cicindela punctulata Oliv. Taken commonly in meadows and along roadsides.

Family CARABIDAE.

Cychrus lecontei Dej. One specimen May 14, 1914, under rotten bag in field.

Carabus sylvosus Say. One specimen beneath rubbish in dense woods.

Calosoma calidum Fab. Quite a common species with spots varying from bronze to bright green. Deformed specimens common.

Nebria pallipes Say. This species occurs sparingly under boards and rubbish.

Clivina impressifrons Lec.

Ardistomis viridis Say. One specimen taken August 8, 1910.

Patrobus longicornis Say. Rare. One specimen Sept. 7, 1910.

Pterostichus lucublandus Say. Common.

Pterostichus luctuosus Dej. Not common.

Pterostichus pennsylvanicus Lec. (?) One specimen taken Sept. 27, 1914.

Amara interstitialis Dej. Common through entire summer.

Amara avida Say. Only two specimens taken.

Amara pallipes Kirby. One specimen May 3, 1914.

Platynus placidus Say. One specimen Oct. 7, 1912.

Platynus melanarius Dej. One specimen May 21, 1912.

Platynus extensicollis Say. One specimen Aug. 24, 1912.

Platynus decens Say. Rare.

Platynus cupripennis Say. A common ground species.

Casnonia pennsylvanica Linn. Took one Aug. 15, 1913, but have not seen it since.

Galerita janus Fab. Taken commonly at light.

Lebia viridis Say. Common under rubbish during the month of May.

Lebia collaris Dej. Taken sparingly during June and July.

Cymindis pilosa Say. One specimen Nov. 26, 1913.

Brachynus cyanipennis Say. Common on shores of ponds during the dry season in summer.

Brachynus deyrollei Laf. One specimen July 27, 1912.
Chlaenius diffinis Chd. Common under stones in company with *B. cyanipennis.*
Chlaenius sericeus Forst. Occurs commonly with above species.
Chlaenius tricolor Dej. Also occurs with the two species above.
Agonoderus pallipes Fab. Taken commonly on the wing during April & May.
Gynandropus hylacis Say. Quite a rare species in this vicinity.
Harpalus caliginosus Fab. This is our commonest and largest species.
Harpalus erraticus Say. Common under logs and rubbish in sandy places.
Stenolophus fulginosus Dej. Two specimens taken from bark of maple.
Stenolophus plebeius Dej. Very common under maple bark.
Bradycellus rupestris Say. Not common.
Anisodactylus baltimorensis Say. A common species through entire summer.
Anisodactylus carbonarius Say. Quite rare. One specimen Aug. 6, 1914.
Anisodactylus sayi Blatchley. A very common species.
Anisodactylus lugubris Dej. Taken sparingly.
Anisodactylus verticalis Lec. One specimen Sept. 7, 1912.
Anisodactylus discoideus Dej. Taken under logs in sandy locations.

Family HALIPLIDAE.

Cnemidotus 12-punctatus Say. Taken plentifully in March.

Family DYTISCIDAE.

Hydroporus undulatus Say. Occurs commonly with the above species.
Agabus gagates Aubé. Rare. One specimen Sept. 29, 1912.
Coptotomus interrogatus Fab. Not very common.
Dytiscus hybridus Aubé. A common species in local ponds.
Dytiscus verticalis Say. Common. Taken in company with above.
Acilius semisulcatus Aubé. Rare. One specimen Sept. 23, 1912.
Colymbetes sculptilis Harr. Rather common. All my specimens were taken at arc lights.

Family GYRINIDAE.

Gyrinus ventralis (?) Kirby. This is one of our commonest water beetles and is to be found the year round.
Dineutes hornii (?) Rob. Found continually in company with above species.

Family HYDROPHILIDAE.

Hydrocharis obtusatus Say. Have taken many at electric lights.

Berosus striatus Say. Taken flying in late spring.

Hydrobius fuscipes Linn. Also taken at arc lights but not common.

Family SILPHIDAE.

Necrophorus americanus Oliv. Taken at electric lights. Most specimens are covered with small yellowish lice. [?]

Necrophorus orbicollis Say. Also taken at lights, but more common than the above.

Necrophorus marginatus Fab. Rare. One specimen Oct. 9, 1912.

Necrophorus tomentosus Web. Taken commonly in fields and pastures.

Silpha surinamensis Fab. Occurs plentifully at light. Have one specimen of a dully brownish-yellow color.

Silpha inaequalis Fab. Taken from dead animals in late spring.

Silpha noveboracensis Forst. Common.

Silpha americana Linn. Another common species.

Family STAPHYLINIDAE.

Quedius fulgidus Fab. Common all through the season. Varies in length from 7 mm. to 18 mm.

Dianous species? A small black species taken frequently by sweeping.

Creophilus villosus Grav. Very common.

Listotrophus cingulatus Grav. Another common species. Very plentiful in late spring.

Family COCCINELLIDAE.

Anisosticta strigata Thunb. A good species, but not common.

Megilla fuscilabris Muls. A common garden insect occurring plentifully on corn.

Hippodamia convergens Guer. Found commonly feeding on aphides of various kinds.

Hippodamia 13-punctata Linn. Found with above but not over common.

Hippodamia parenthesis Say. One of the rarer species.

Coccinella sanguinea Linn. Found feeding on aphides. Quite common.

Coccinella transversoguttata Fab. Taken quite commonly on cherry and plum trees.

Coccinella trifasciata Linn. Not very common. Occurs with the above.

Coccinella 9-notata Hbst. Very common.

Adalia bipunctata Linn. Our commonest species. Occurs all the year round.

Adalia frigida Schn. Rare. One specimen May 26, 1912.
Anatis 15-punctata Oliv. Common. Many forms. Spots entirely obliterated in some specimens.
Psyllobora 20-maculata Say. Taken crawling along the ground under dense vegetation.
Chilocorus bivulnerus Muls. A very common species on wild cherry. Wings of young or newly emerged specimens are light red and flexible to touch.
Brachyacantha ursina Fab. Common on shrubbery. Taken by sweeping.
Hyperaspis fimbriolata Mels. Common. Procured by sweeping low shrubs.
Hyperaspis proba Say. Occurs commonly with above.
Hyperaspis tenebrosa Muls. Obtained by sweeping. Occurs with above two species.
Hyperaspis binotata Say. Rare.

Family ENDOMYCHIDAE.

Endomychus biguttatus Say. Taken from fungus and also under bark of elm.

Family EROTYLIDAE.

Languria mozardi Lat. A beautiful species. Occurs on heads of dandelion.

Family CUCUJIDAE.

Catogenus rufus Fab. Taken under bark of hickory.
Cucujus clavipes Fab. Also occurs under bark of hickory but sparingly.

Family DERMESTIDAE.

Dermestes marmoratus Say. Quite common on skeletons of cattle and horses.
Dermestes lardarius Linn. Very common and destructive to cabinet specimens.
Anthrenus scrophulariae Linn. Common on blossoms of wild cherry.
Anthrenus thoracicus Melsh. Common on blossoms of wild cherry.

Family HISTERIDAE.

Hister interruptus Beauv. Very common in pastures.

Family NITIDULIDAE.

Omosita colon Linn. Common on old skeletons of cattle. Also taken flying in spring.
Ips quadriguttata Fab. Occurs under bark of elm and ash.

Family ELATERIDAE.

Elater hepaticus Say. Rare.
Elater nigricollis Hbst. Rare. Under elm bark.

Elater sanguinipennis Say. Rare.
Adelocera discoidea Web. Rare. One specimen Feb. 2, 1909.
Adelocera obtecta Say. Rare.
Alaus myops Fab. Not common. Varies considerably in size.
Alaus oculatus Linn. Rare. Take about two each year.
Cardiophorus robustus Lec. Rare. Taken by sweeping.
Monocrepidius lividus DeG. Taken from bark of oak, maple and elm.
Monocrepidius vespertinus Fab. Rare. One specimen April 8, 1912, under bark.
Ludius attenuatus Say. Rare. Taken in mid-summer from low shrubs.
Melanotus castanipes Payk. Not common.
Melanotus fissilis Say. Very common under bark of oak, maple and elm.
Corymbites pyrrhos Hbst. Rare. One specimen Aug. 8, 1914.
Corymbites hieroglyphicus Say. Rare. Taken from low shrubbery in July.

Family BUPRESTIDAE.

Chalcophora virginiensis Drury. Rare. One specimen from telephone pole, March 21, 1911.
Dicerca lurida Fab. Not common.
Dicerca divaricata Say. Found sparingly on elm and oak in late spring.
Chrysobothris floricola Gory. Rather rare. Taken flying.
Acmaeodera tubulus Fab. Taken by sweeping. Very rare.
Agrilus ruficollis Fab. Common.
Agrilus egenus Gory. Also common. Taken by sweeping.
Agrilus otiosus Say. Occurs with above species but rather rare.
Agrilus bilineatus Web. Rare. Only a few specimens taken.
Agrilus lateralis Say. Very rare. One specimen June 11, 1909.
Brachys ovata Web. Obtained fairly plentifully by sweeping.
Brachys aerosa Melsh. Not as common as above, but occurs with it.
Taphrocerus gracilis Say. Rare. Taken by sweeping low shrubbery.
Pachyscelis purpureus Say. Occurs on low plants in sandy regions.

Family LAMPYRIDAE.

Plateros modestus Say. Common in 1914. Rare in former years.
Ellychnia corrusca Linn. Common under bark of maple, elm, oak and ash.
Photuris pennsylvanica DeG. Occurs sparingly on low shrubbery.
Chauliognathus marginatus Fab. Very rare here. Took one specimen July 18, 1914.

Chauliognathus pennsylvanicus DeG. Very common. Occurs on golden rod in late summer.

Podabrus tricostatus Say. Rather rare.

Telephorus tuberculatus Lec. Rare.

Telephorus dentiger Lec. Also rare but is met with more often than the preceding species.

Telephorus bilineatus Say. Not common. Took this species only in 1914.

Family MALACHIDAE.

Malachius aeneus Linn. Rare. Have taken but one specimen of this. I found this specimen in back of a machine shop, but failed to catch it the first time, owing to the fact that I took it to be a Cicindelid. About a week later I happened to be on the same spot and saw it again, with the result that I captured it. I believe this was the same specimen I saw the first time, as the plot of ground was enclosed by a high fence.

Family LUCANIDAE.

Lucanus dama Thunb. Common. Taken mostly at light.

Passalus cornutus Fab. Rare. Took one specimen June 21, 1914, in old elm stump.

Dorcus parallelus Say. Rather rare. Took about 8 specimens on electric light poles between the hours of 8 to 10 on warm evenings.

Family SCARABAEIDAE.

Canthon laevis Drury. Rare. One specimen Sept. 31, 1914.

Canthon chalcites Hald. Very rare.

Copris carolinus Linn. Common. Varies considerably in size.

Onthophagus hecate Panz. Not as common as above, but found frequently flying over low meadows.

Aphodius granarius Linn. Our most common species. Found during entire summer.

Aphodius fimetarius Linn. Practically as common as above species, but not so much in evidence.

Geotrupes splendidus Fab. Rare. Took one specimen Oct. 20, 1912, in depression in ground under rotten apple.

Geotrupes balyi Jek. Rare also.

Trox suberosus Hbst. Occurs by hundreds in refuse heap of blacksmith shop.

Trox unistriatus Beauv. Common with above species.

Amphicoma vulpina Hentz. Very rare. One specimen taken on lawn June 1, 1912.

Hoplia trivialis Harold. Not common. Found flying around low shrubbery in May and June.

Dichelonycha elongata Fab. The only species that seems to occur here and it is not common. Found on ash and maple soon after leaves have opened out.

Serica vespertina Gyll. Not common. Found at electric lights.

Serica sericea Ill. Common. Also taken at lights.

Serica intermixta Blatchley. Common on wild rose.

Macrodactylus subspinosus Fab. Common on both cultivated and wild roses. Also occurs on pussy willow.

Lachnosterna fusca Froh. Very common. Interferes with collecting at light and also a great bother when sugaring.

Lachnosterna gibbosa Burm. Not common. Occurs at light.

Ligyrus relictus Say. Common. Occurs at light during mid-summer.

Anomala lucicola Fab. Rather rare. Found on electric light poles during mid-summer.

Anomala binotata Gyll. Rare. Taken on lawns.

Valgus squamiger Beauv. Rare. Procured by sweeping low shrubs.

Pelidnota punctata Linn. Common. Is to be found in considerable numbers at lights.

Cotalpa lanigera Linn. Common. Occurs on willow in early spring. I have one specimen in which the head and thorax are bright green, while the elytra are dark yellow-brown with legs normal color.

Euphoria fulgida Fab. Used to be common, but have not seen it since 1912.

Euphoria inda Linn. Very common. Closely imitates a bumblebee in flight.

Cremastochilus harrisii Kirby. Common.

Trichius piger Fab. Common and varies considerably in color and markings.

Osmoderma eremicola Knoch. Rare. Have taken several drowned specimens from water tanks.

Osmoderma scabra Beauv. Rather rare. Occurs occasionally at light.

Family SPONDYLIDAE.

Parandra brunnea Fab. Common at light during mid-summer.

Family CERAMBYCIDAE.

Orthosoma brunneum Forst. Not a very common species, but often to be found in open water troughs and tanks.

Prionus laticollis Drury. Scarce. Sometimes found drowned in open water tanks.

Hylotrupes ligneus Fab. Taken rarely on cedar posts.

Phymatodes variabilis Fab. Found commonly under wood-piles The yellow variety is the rarest.

Callidium antennatum Newm. Rare. To be found on new fence posts of cedar.

Callidium janthinum Lec. (?) Very rare. One specimen taken in company with the above June 11, 1912.

Molorchus bimaculatus Say. Common in 1912, but has been rare ever since. Occurs on blossoms of low shrubs.

Euderces picipes Fab. Rare. One specimen taken on shrubbery in July.

Neoclytus capraea Say. Very rare. Found in woodpiles.

Neoclytus erythrocephalus Fab. Not common. To be found on newly erected telephone poles.

Xylotrechus colonus Fab. Rather common. Found in woodpiles.

Cyllene robiniae Forst. Common on golden rod in August.

Plagionotus speciosus Say. Very common during season of 1914. Has caused the death of practically all the maples in the village schoolyard. From my experience I do not think it attacks soft maples.

Desmocerus palliatus Forst. Common. Found on elder shoots early in the spring.

Strangalia luteicornis Fab. Taken on the flowers of low shrubs. Not common.

Strangalia acuminata Oliv. Common. Occurs with the above species.

Gaurotes cyanipennis Say. Very rare. Have taken but one specimen by sweeping.

Typocerus velutinus Oliv. A common species. Found on low shrubs and also on flowers of golden rod.

Leptura pubera Say. Very rare. Took one specimen May 31, 1914, and one on June 14, 1914.

Leptura rubrica Say. Rather rare.

Leptura vittata Germ. Rather rare. Taken in company with the above two species.

Leptura lineola Say. Very rare.

Leptura octonotata Say. Another very rare species. Have taken one Sept. 18, 1910.

Leptura zebra Oliv. Quite common. Found on golden rod.

Leptura cordifera Oliv. Quite rare, but took several specimens in 1914.

Dorcaschema nigrum Say. Very rare. Took one specimen by sweeping foliage of young trees.

Acanthoderes quadrigibbus Say. Quite common on oak.

Toxotus vittiger Rand. Rare. Took several specimens June 21, 1914, on young cedar bushes.

Psenocerus supernotatus Say. Very rare.

Saperda imitans Joutel. Rare. Took one beautiful specimen at light.

Saperda calcarata Say. Rare. Also took one specimen at light.
Saperda tridentata Oliv. Quite rare. Have only one specimen from this vicinity.
Saperda lateralis Fab. Rare. Have one specimen taken June 7, 1914.
Tetraopes canteriator Drap. Common on milkweed.
Oberea ruficollis Fab. Rare.
Oberea ocellata Hald. Also rare. Have but one specimen taken here.

Family CHRYSOMELIDAE.

Donacia proxima Kirby. Rare. Occurs on the leaves of the common pond lily.
Donacia subtilis Kunze. Common. Varies in color from bright blue to bright red.
Donacia pusilla Say. Very rare. Occurs on bushes near shores of ponds.
Crioceris asparagi Linn. Generally common.
Crioceris 12-punctatus Linn. About as common as the above species.
Anomoea laticlavia Forst. Rather common. Taken from low shrubbery.
Coscinoptera dominicana Fab. Also taken from low shrubs.
Chlamys plicata Fab. Common. Taken from leaves of blackberry.
Cryptocephalus mutabilis Melsh. Not common.
Cryptocephalus quadruplex Newm. Common. Taken from leaves of blackberry.
Pachybrachys luridus Fab. Not common. To be obtained by sweeping.
Pachybrachys subfasciatus Hald. Found on elm.
Pachybrachys trinotatus Melsh. Very rare. Have one specimen taken July 22, 1912.
Pachybrachys othonus Say. Rather rare. Taken from blackberry bushes.
Pachybrachys picturatus Germ. Common during the last season.
Xanthonia 10-notata Say. Taken by sweeping pasture lands early in the spring.
Glyptoscelis pubescens Fab. Very rare.
Chrysochus auratus Fab. One of the commonest and most beautiful members of the family.
Chrysomela similis Rog. Common. Mostly taken by sweeping.
Chrysomela elegans Oliv. Common.
Calligrapha inornata Rog. Rather rare.
Graphops pubescens Melsh. Common. Occurs on many garden weeds.
Colaspis brunnea Fab. Rare.

Labidomera clivicollis Kirby. Rare. Sometimes found on dandelion blossoms.

Leptinotarsa 10-lineata. This species seems to be on the increase.

Typophorus aterrimus Oliv. Taken by sweeping pastures in early spring.

Typophorus quadriguttatus Lec. Occurs with the above species. Rare.

Typophorus thoracicus Melsh. Very rare. Found with the two above.

Typophorus pumilus Lec. Rare. Have only one specimen taken July 12, 1914.

Plagiodera viridis Melsh. Rare.

Gastroidea polygoni Linn. Common.

Lina tremulae Fab. Very rare. Have one specimen that was taken on sumach.

Lina scripta Fab. Common. Occurs on young willow sprouts.

Lina interrupta Fab. Common. Taken on the wing.

Diabrotica 12-punctata Oliv. Seems to be rare in this vicinity.

Diabrotica vittata Fab. Common. Taken on the blossoms of pear and willow catkins.

Trirhabda canadensis Kirby. Very common.

Syneta ferruginea Germ. Very rare.

Adimonia americana Fab. Commonly found on a species of willow.

Galeruca sagittariae Gyll. Very rare. Have taken several specimens by sweeping low shrubs.

Galeruca notata Fab. Rare. Also taken by sweeping.

Galeruca luteola Schr. Very common.

Blephorida rhois Forst. Not very common.

Disonycha pennsylvanica Ill. Common. Occurs on low plants bordering watering places.

Disonycha caroliniana Fab. Rare. Occurs with above species.

Disonycha triangularis Say. Rare. Occurs in small colonies in pastures.

Epitrix cucumeris Harr. One of our worst cucumber pests.

Chaetocnema obesula Lec. Taken from pasture grass.

Phyllotreta armoraciae Koch. Common. Occurs on horse radish.

Systena taeniata Curt. Rare. Have taken only two or three specimens here.

Systena hudsonias Forst. Very rare. Have one specimen taken August 9, 1910.

Microrhopala vittata Fab. Very common. Occurs on roadside plants in May.

Odontota bicolor Oliv. Rare.

Odontota scapularis Oliv. Very rare.

Odontota rubra Web. Rare but found more frequently than the above two species.

Odontota nervosa Panz. Rather common. Taken by sweeping.
Coptocycla bicolor Fab. Common. Found on the leaves of horseradish.
Coptocycla clavata Fab. Occurs with the above, but is considerably rarer.
Coptocycla signifera Fab. Very rare. Occurs with the other two species.
Chelymorpha argus Licht. Rather rare in this vicinity. Taken by sweeping low foliage.

Family TENEBRIONIDAE.

Nyctobates pennsylvanica DeG. Common. Occurs beneath the bark of maple and elm.
Upis ceramboides Linn. Quite rare in this vicinity.
Scotobates calcaratus Fab. Rare. Taken at light.
Opatrinus notatus. Common under stones the year round.
Xylopinus aenescens Lec. Not rare. Occurs on foliage of elder and other small trees.
Tenebrio molitor Linn. Common.
Tenebrio tenebrioides Beauv. Not as common as the above species.
Tenebrio castaneus Knoch. Quite rare in this vicinity.
Helops micans Fab. Rare.
Haplandrus femoratus Fab. Rare. Found under stones.
Diaperis maculata Oliv. Common. Found in fungi on elm and maple.
Hoplocephala bicornis Oliv. Common. Found under bark of maple occasionally.
Blapstinus metallicus Fab. Rare in this vicinity.

Family CISTELIDAE.

Isomira quadristriata Coup. Occasionally taken by sweeping.

Family MELANDRYIDAE.

Melandrya striata Say. Rare.

Family OEDEMERIDAE.

Asclera ruficollis Say. Rare. Taken from blossoms of dandelion.

Family MORDELLIDAE.

Mordella marginata Melsh. Common. Taken from white daisy.
Mordellistena comata Lec. Also occurs on white daisy, but is rare.

Family ANTHICIDAE.

Notoxus bifasciatus Lec. Occurs on the common milkweed.
Notoxus monodon Fab. Also occurs on milkweed and is the more common of the two species.

Family PYROCHROIDAE.

Pyrochroa flabellata Fab. Rare. Took about ten specimens at sugar last year.

Family MELOIDAE.

Meloe americanus Leach. Rare. Have one specimen taken in May and one taken in September.

Pomphopoea aenea Say. Quite common on the blossoms of wild pear.

Epicauta marginata Fab. Not common.

Epicauta pennsylvanica DeG. Usually very common.

Epicauta cinerea Forst. Was very common last year on huckleberry bushes.

Family RHIPIPHORIDAE.

Myodites fasciatus Say. Rare. Occurs in sandy places.

Family RHYNCHITIDAE.

Rhynchites bicolor Fab. Occurs on the wild rose.

Family ATTELABIDAE.

Attelabus analis Ill. Also occurs on the wild rose.

Family OTIORHYNCHIDAE.

Aphrastus taeniatus Gyll. Rare.

Pandeletejus hilaris Hbst. Common. Beaten from branches of oak.

Family CURCULIONIDAE.

Phytonomus nigrirostris Fab. Common.

Phytonomus meles. Also very common. Most specimens taken on the wing.

Ithycerus noveboracensis Forst. Beaten from oak branches. Rather rare.

Stephanocleonus plumbeus Lec. Very rare. Taken from railroad track, where it closely resembles small stones.

Lixus concavus Say. Quite common on dock. Holds tenaciously to anything with which it comes in contact.

Tyloderma foveolatum Say. Common on garden weeds.

Rhyssematus lineaticollis Say. Common.

Mononychus vulpeculus Fab. Found on mullein.

Coeliodes acephalus Say. A most common species on mullein.

Centrinus scutellum-album Say. Occurs on many small plants.

Otidocephalus chevrolatii Horn. Rare.

Family CALANDRIDAE.

Cossonus corticola Say. Rather rare. Taken under bark of elm log.

Rhodobaenus tredecimpunctatus Ill. Very rare. Have not seen this species for two years.

Sphenophorus pertinax Oliv. Rare.

Sphenophorus parvulus Gyll. Not as rare as the above.

Family SCOLYTIDAE.

Hylesinus aculeatus Say. Very rare.

Dendroctonus terebrans Oliv. Taken from cedar posts of Lepidoptera cage before mentioned.

Description of a New Coleophora Moth and Note on a Synonym (Lep.).

By WILLIAM WILD, East Aurora, N. Y.

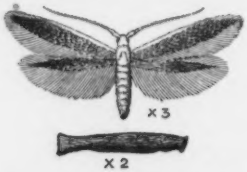
Coleophora albiantennaella n. sp.

Expanse 12 to 13 mm.

Head, palpi, antennae and thorax, pale ochreous-white; palpi slightly tufted; antennae not annulated, basal joint thickened; legs pale ochreous-white.

Forewings: coarsely covered with grayish-brown scales, becoming darker in apical third. A broad white streak extending along costal margin from base to cilia. Cilia light gray.

Hindwings: very light grayish-brown, cilia concolorous.



Coleophora albiantennaella and larval case.

Locality: Buffalo, New York. *Cotypes,* two, in my collection, but they may eventually be placed in the United States National Museum.

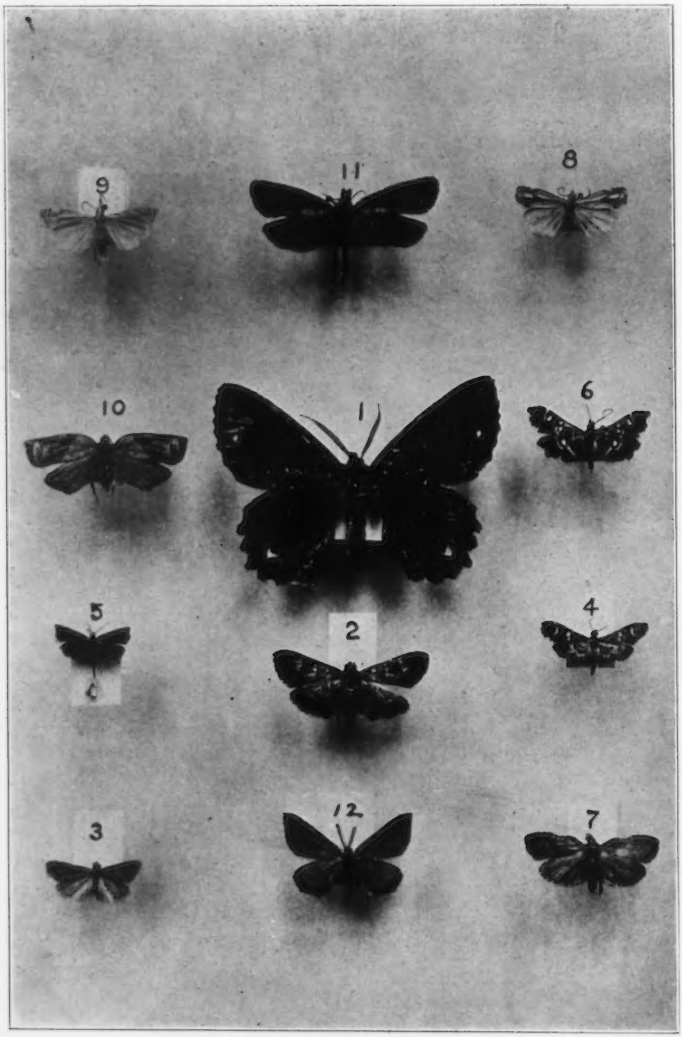
Two specimens bred from larvae feeding on the under side of leaves of dogwood. Larvae taken June 12th. Imagos issued July 20th and 30th.

Larva: length 5 mm. Cylindrical, reddish-brown. Head black. Prothoracic and mesothoracic shields black, divided by a light dorsal line; a lateral black spot on each thoracic segment. Thoracic legs black. Anal plate black.

Case: length 11 mm. Grayish-brown, cigar-shaped, a trifle compressed laterally. Mouth opening oblique, slightly flared. Posterior end dilated, flattened and square-ending.

Coleophora auropurpuriella Cham.

C. auropurpuriella Cham. is a synonym of *C. corruscipennella* Clem. according to Chambers' own correction in the Can. Ent., VII, 124, 1875, which has been overlooked in Dr. Dyar's list and in Smith's list, probably on account of not being included in the index of this volume.



NEW HETEROCERA—HAIMBACH.

New Heterocera (Lep.).

By Frank Haimbach, Philadelphia, Pa.

(Plate XII.)

Epimecis carbonaria n. sp. (Plate XII, fig. 1).

Alar expanse 41 to 48 mm. Entire upper surface of wings smoky black. Primaries with a white, dentate submarginal line, bordered on both sides with intense black; transverse posterior line also white, dentate, with intense black ornamentation, on submarginal line the dark ornamentation is more conspicuously inwardly; there is an intense black reniform spot, from which issues an indistinct line, running to interior margin.

Secondaries: median and marginal lines meet the lines on primaries, and in the middle of marginal line, the tooth is ornamented inwardly with a while lunule; the discal spot is black.

Under side of wings, lighter than above; markings the same as above, but less distinct; one specimen before me shows only a slight indication of the lines.

Described from six specimens, five taken at Roxborough, Philadelphia, Pa., V, 21, 09; VI, 7; VI, 21; VII, 2, 11, and X, 1, and one specimen taken at Glenolden, Pa., without date.

The species is closely allied to *E. virginaria* Cramer, but can be readily separated by its much darker color.

Pyrausta jamaicalis n. sp. (Plate XII, fig. 2).

Alar expanse 28 mm. Head, thorax and abdomen bronze brown above, the abdomen with a broad whitish stripe, covering all but anal segment.

Wings of uniform bronze brown color, showing an iridescent lilac color on the light markings. Shape of wings as in *P. pertextalis* Lederer and *P. aeglealis* Walker.

The markings on primaries are of a smoky grey color, and cover nearly two-thirds of wings; the submarginal line is shaped like a sickle, with handle toward inner margin; inwardly from this line there is a large dark brown spot on the light surface somewhat in the shape of a two-pointed flag or pennant, which emanates from the costa, then a perfectly straight line reaching from the costa to inner angle, then a basal line within which is an irregular dark brown blotch to base.

Secondaries with zigzag median line and prominent discal spot in dark brown oval.

Underside, wings as above; thorax and abdomen ochraceous, legs ochraceous beneath, dark brown above, annulated on the tarsi.

Described from one female specimen, taken at Montego Bay,

Jamaica, British West Indies, XI, 2, 13, by Mr. Morgan Hebard, and kindly presented to me by Mr. George M. Greene.

Pyrausta huachucalis n. sp. (Plate XII, fig. 3).

Alar expanse 18 mm. Primaries purple lake, a white submarginal line, dentate in shape, and a similar line near middle of wing running parallel with submarginal line; the costa has a row of small black dots, beginning at the line near middle and extending outwardly and along exterior margin.

Secondaries smoky white, without any markings, lighter basally.

Cilia of all wings smoky white, with a row of dots of brown running through centre, forming a dark line.

Two specimens, Miller's Canyon, Huachuca Mountains, Arizona, July, 1907, Wenzel & Kaeber.

The nearest species to this in wing form is *P. illibalis* Huebner, though otherwise it bears no resemblance to it. It is with some reluctance that I describe this species under the genus *Pyrausta,* as perhaps when the genus is revised and subdivided, this may fall into another closely allied genus.

Hymenia kaeberalis n. sp. (Plate XII, fig. 4).

Alar expanse 19 to 20 mm. Upper surface of wings very dark brown, irrorate.

Primaries: a white lunular spot at one-third from exterior margin, and a zigzag white spot at one-third from base, both enclosed with black lines.

Secondaries with irregular median and marginal lines, between which the space is much lighter than the rest of wing, really approaching white.

Cilia brown, with a row of dark spots running through them, forming a line, except at inner angle, there is a white spot formed by that part of cilia.

Under side of wings like upper, but more sharply defined, making the contrast of colors greater.

Described from ten specimens taken at Miller's Canyon, Huachuca Mountains, Arizona, in July, 1907.

It gives me pleasure to dedicate this species to Mr. H. A. Kaeber, who in company with Mr. H. A. Wenzel, collected this and many other interesting species in the Summer of 1907.

Diathrausta daeckealis n. sp. (Plate XII, fig. 5).

Alar expanse 13 mm. Upper and under surface of wings black.

Primaries: a faint white line from costa to middle of wing, at about

one-fourth from outer margin; another very faint white curved line from costa to interior margin, which line meets a similar line on secondaries, which is also curved, and which together form a symmetrical curved line on each side of the insect.

On the under side the curved line of primaries is not visible, otherwise the marking is the same as above.

There is a large white spot in the cilia of upper wings, rest of cilia black.

Brown's Mills Junction, New Jersey, VI, 22, 1907, collected by Mr. E. Daecke, for whom it gives me pleasure to name this species.

This insect resembles *D. reconditalis* Walker, but can be easily recognized by the absence of the white spots on the former, and by the very regular lines, while in *reconditalis* the lines are irregular, also by the lines in secondaries being much nearer the apex in *daeckealis* than in *reconditalis*.

Diathrausta montana n. sp. (Plate XII, fig. 6).

Alar expanse 19 to 22 mm. Closely related to *D. reconditalis* Walker, but much larger, the alar expanse of *reconditalis* being only 13 to 15 mm.; besides the difference in size, the markings are much more pronounced in *montana*, particularly in the hind wings, where there is a line reaching from near costa to hind margin, and another line outward from this line, reaching almost half-way across wing.

Described from four specimens, Chimney Gulch, Golden, Colorado, VI, 3, and VI, 15, 1907.

I have many specimens of *reconditalis*, and from many localities, and I cannot find one specimen to form a connecting link between these species; there are no intergrades.

Galasa fulvusana n. sp. (Plate XII, fig. 7).

Alar expanse 24 mm. A near ally to *G. rubidana* Walker; the points of difference are the following: *fulvusana* is larger than the largest specimens of *rubidana*, and the color is not bright red as in *rubidana*, but is fulvous.

Rubidana has white lines emanating from costal fold and forming a circular spot in well marked specimens, while *fulvusana* has a line running from same place at costa to hind margin of wings, not circular, and overlaid with black scales.

One specimen, Miller's Canyon, Huachuca Mountains, Arizona, July, 1907, Kaeber and Wenzel.

Crambus carolinellus n. sp. (Plate XII, fig. 8).

Alar expanse 19 to 20 mm. A clean-cut, little species, very similar in marking to *C. alboclavellus* Zeller, but smaller and color more distinct, in that the dark brown marking on the white wings forms a contrast which is not apparent in *alboclavellus*. The dark brown line at junction of tooth and the subterminal line are much closer together than in *alboclavellus*, and the white spot between these lines, which is the continuation of the stripe forming the tooth, is therefore shorter and more intense. This little species is constant insofar as the specimens before me are concerned, all being of uniform size and color; there is only 1 mm. difference between the largest and smallest specimens. *Alboclavellus* is a very variable species; specimens taken in one day and at the same place will often show quite a variety of colors and sizes. This difference in size, and the lines being closer together on the primaries, I believe, will justify the establishing of the species *carolinellus*.

Fourteen specimens taken at Black Mountains, North Carolina, VI, 25, to VII, 20, 1912, by Mr. William Beutenmueller.

Crambus lyonsellus n. sp. (Plate XII. fig. 9).

Alar expanse 21 mm. In color and marking nearest to *C. pascuellus*, with the following points of difference: in *pascuellus* the white line on primaries runs along costa, and at nearly one-half from apex, it turns away inwardly and forms a well-defined rounded point, while in *lyonsellus* the white line is wider, and runs along costa about three-fifths from apex, and makes an acute turn, forming a tooth. The subterminal line of *lyonsellus* is less angular than that of *pascuellus;* it arises nearer the apex than in *pascuellus*, thereby reducing the degrees of the angle.

Two specimens, Katonah, Westchester County, New York, June and July, W. Beutenmueller.

It gives me much pleasure to dedicate this species to Mr. Frank D. Lyons, who has helped me very considerably in the last two years to build up my collection of Lepidoptera.

Amorbia wenzelana n. sp. (Plate XII, fig. 10).

Alar expanse 29 mm. Primaries brownish grey, with a reddish hue, which is most pronounced on the outer half of interior margin. There is a transverse line emanating from costa, about one-third from base, and running outwardly to about one-half of interior margin, two dark brown blotches at costa, one along the line above referred to, and extending about two-fifths of its length, the other a kidney-shaped spot at costa; there are several irregular lines at exterior margin. Cilia reddish.

Secondaries brick red, void of any ornamentation. Cilia dark brown.

One female taken at Miller's Canyon, Huachuca Mountains, Arizona, in July, 1907.

It is with pleasure that I name this species for Mr. H. A. Wenzel, who, in company with Mr. H. A. Kaeber, collected many interesting Lepidoptera during their sojourn in the Huachucas, and which I was fortunate enough to obtain from them.

The species is closest to *A. humerosana* Clemens.

Anaphora busckella n. sp. (Plate XII, fig. 11).

Alar expanse 33 mm. Primaries dark brown, with a violaceous tinge, a broad white stripe, also violaceous, at interior margin, speckled with dark brown irrorate spots. There are several blackish spots above the light stripe, the centre one of which partly covers the light stripe.

Secondaries and cilia dark smoky brown.

Under sides of wings uniformly dark smoky brown, without any ornamentation.

One female taken at Jamesburg, New Jersey, July 4th.

I am pleased to dedicate this distinct species to Mr. A. Busck, who kindly determined the genus for me, and in many other determinations gave me valuable assistance.

The types of all the species here described are in the author's collection.

EXPLANATION OF PLATE XII.

1. *Epimecis carbonaria* n. sp.
2. *Pyrausta jamaicalis* n. sp.
3. *Pyrausta huachucalis* n. sp.
4. *Hymenia kaeberalis* n. sp.
5. *Diathrausta daeckealis* n. sp.
6. *Diathrausta montana* n. sp.
7. *Galasa fulvusana* n. sp.
8. *Crambus carolinellus* n. sp.
9. *Crambus lyonsellus* n. sp.
10. *Amorbia wenzelana* n. sp.
11. *Anaphora busckella* n. sp.
12. *Haemotopsis grataria* Fab., var. *annettaria* Haimbach.

A New Genus of Chalcidine Hymenoptera.

Doctor Luigi Masi, in his "Contribuzioni alla conoscenza dei Calcididi Italiani" (Boll. Lab. di Zool. generale e agraria della R. Scuola Superiore d'Agricoltura in Portici, 1908, III, pp. 106-108, figs. 11 to 13) describes *Chalcis modestus* Masi, giving figures which show that the hind femur bears one large tooth beneath, somewhat beyond the proximal half, followed by *many minute, comblike* teeth as in *Stomatoceras* Kirby. Thus, the dentation is totally different from that occurring in *Chalcis* and I therefore erect the **new genus Hypochalcis** for the species *Chalcis modestus* Masi in the tribe Chalcidini. The genus is similar to *Chalcis* in other respects, the scutellum unarmed at apex, the antennae 13-jointed.—A. A. GIRAULT, Washington, D. C.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., JULY, 1915.

A Contrast and a Hope.

The Summer of 1915. Instead of an International Congress of Entomology, repeating the social intercourse, the making of new friendships, the reaching of hands across the sea, of Brussels and of Oxford, an International War with Entomologists serving in the opposing lines. *Then*, the increased forbearance, sympathy and understanding that comes from personal acquaintance; *now*, the intensifying of those racial and national prejudices which influence even those who strive against them and who know their baleful effects. Only in the far West of America will there be, this Summer, a shining ray of hope in the assembling of those who cultivate insect lore. The additional meeting of the Entomological Society of America (the announcement of which is made on another page of this number of the NEWS), instead of competing with the Congress planned for Vienna, will be the only general gathering where entomologists of all nations may meet under a neutral flag in the peace of science. To California comes the opportunity of raising the torch of knowledge far above and away from the din and smoke of strife. May the whole earth know again some of that peace which it enjoyed before these terrible present days!

We learn, through the *Entomologists' Record*, that Dr. Walther Horn, the eminent German Coleopterist, is at the front somewhere as a Regimental Doctor.

Blood Worms and Water Pollution (Dip.).

The presence of "blood-worms" [of which the most common species in the United States are the larvae of *Chironomus decorus, viridicollis* and *lobiferus*] in any body of water is not an indication that such water is polluted, although they may be, and often are, found in water that is contaminated with sewage. There are, however, but few species to be found in badly polluted water, most species being confined to unpolluted water or to that which is but slightly tainted. Even blood-red larvae are not in all cases found in polluted water, as the two largest species in the Illinois are confined to the parts of the river which are comparatively clean.—J. R. MALLOCH, Bull. Ill. St. Lab. Nat. Hist., x, p. 534, 1915.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Observations on Colias interior Scudder (Lepid.).

For the past two summers I have been on a small island off the Maine coast. It is two miles from Mount Desert, which, in turn is half a mile from the mainland at the nearest point. It is a most delightful island, and if it were not for the frequent and sometimes long-lasting fogs, would be an ideal place in every way.

During the summer of 1913 I caught my first specimen on July 10, and in the past summer of 1914, on July 12. The first to emerge are in most cases unusually large and deeply-colored males. The first specimen had extremely dark yellow wings and very deep black borders. The under sides were deep orange, with one very bright pink ocellus on the secondaries.

The first few males showed signs of great sluggishness in their flight. They hardly ever flew more than twenty or thirty yards, and then only when they were disturbed, and in a very leisurely manner. About two days later I captured the first female of the season. They were also very slow fliers for the first day, but a day later, both males and females flew quite swiftly and made their capture quite a difficult matter, for they would not remain quiet on the approach of the collector. From about July 18th to the 21st I saw and caught only females. The males seemed to have entirely disappeared. From then to July 26th I caught about an equal number of each sex. Then from the 27th of July they began to diminish in numbers very rapidly, until on the 6th of August I caught my last specimen, a very much battered, light-colored female. The previous summer I captured the last specimen I saw, likewise a female, on the 4th of August. The first females, like the first males, were much darker in color than the average of those I caught. About the end of July I caught an almost entirely white female.

I was very much interested to notice that of the four small surrounding islands only two had *C. interior* (during both summers). And in only certain sections on Mt. Desert Island could I find any specimens at all. Another curious fact I noticed was that at first I captured my specimens in the open meadows, while later on I caught *C. interior* only in open glades or fields surrounded by woods.

The following is a table showing approximately the relative number of males and females of *C. interior* as observed during the two summers of 1913 and 1914:

Approximate dates	Males	Females
July 10-12	first one	none
" 12-14	few	first one
" 14-18	many	few
" 18-21	none	many
" 22-26	many	many
" 27-August 4	decreasing	
August 4-6	none	last

ARTHUR H. NAPIER, *Haverford, Pa.*

The Entomological Society of America—Announcement of Summer Meeting, San Francisco, California, August, 1915.

Despite the long way to go entailed by a trip from the East or Middle West to the Pacific Coast, the coming summer is the special time of all times for members of the Entomological Society of America to undertake the journey. The meeting of the Society in the first week of August at Berkeley (University of California) and Palo Alto (Stanford University), in conjunction with the simultaneous meetings of the American Association for the Advancement of Science, and affiliated societies, might well be sufficient incentive and reason for the expedition, but when there is added the special opportunity to see at the same time some of the beauties and become acquainted with some of the fascinating entomological conditions of the Pacific Coast, and to visit an international exposition of unusual picturesqueness and extent, then the incentive should become simply compelling. The half-fare railway rate, with different going and returning routes permitted, should help make the compulsion one easy to submit to.

The Pacific Coast members of the Society, therefore, earnestly invite and urge their fellow-members from "The States" to come to California and to the summer meeting, and they promise, all and severally, to do what they can to help make the long journey worth while. The University of California will maintain an "entomological camp" on the shores of beautiful Lake Tahoe, which lies in the Sierra Nevada just where one of the trans-continental railway lines crosses the divide. There will be a warm welcome at the camp for any entomologist who cares to stop off, coming or going, to stay a few days in this unexcelled collecting region. The collections of Stanford University and the University of California, as well as several notable private collections of Pacific Coast insects, will be constantly accessible to all visiting entomologists. Several collecting excursions, reaching a wide variety of insect habitat, (seashore, salt-marsh, foothill, mountain, desert and fertile valley) are planned.

Finally, as to papers to be presented at the meeting, the Pacific Coast members will be quite willing to allow their eastern colleagues to provide most of this part of the entertainment, but nevertheless will be willing to do their share. Their contributions will especially concern the problems of insect occurrence and distribution, ecologic relation and economic bearing, presented by Pacific Coast and Pacific Island biologic conditions. The temporary secretary would be glad to receive communications concerning proposed papers.

We shall be glad to send to any interested member of the Society a copy of the information pamphlet of the Pacific Coast Committee of the A. A. A. S., in which will be found much practical information that will be of use to members contemplating coming West this summer. It would be a special favor to us if members of the Society intending to attend the summer meeting would inform us (addressing Dr. E. C. Van Dyke, University of California, Berkeley, California), in advance. This information will aid us materially in making hotel arrangements, planning excursions, etc.

The blanks giving titles of papers and exhibits for the meeting should be sent to the Temporary Secretary, Dr. E. C. Van Dyke, University of California, Berkeley, California, and the nominations of new members should be sent to the Secretary-Treasurer at the University of Illinois, Urbana, Ill.—VERNON L. KELLOGG, *President;* ALEX. D. MACGILLIVRAY, *Secretary-Treasurer;* E. C. VAN DYKE, *Temporary Secretary.*

Lycaena argiolus in America. (Lep.).

I believe the multiplicity of names we have in this country ranged under *Lycaena pseudargiolus* Bdl.-Lec. only represent varieties of the European and Asiatic *argiolus*. I would list them as follows:

Argiolus Linn.
- var. **pseudargiolus** Bdl.-Lec. (1833)
  - *neglecta* Edw. (1862)
- var. **lucia** Kirby (1837)
  - *violacea* Edw. (1866)
  - *marginata* Edw. (1883)
  - *cinerea* Edw. (1883)
  - *fumida* Scudder (1889)
  - *pseudora* Scudder (1889)
  - *argentata* Fletcher (1903)
  - *quesnellii* Cockle (1910)
  - *intermedia* Streck. (1878)
- var. **nig** Streck. (1878)
  - *nigra* Edw. (1884)
- var. **echo** Edw. (1864)
  - *arizonensis* Edw. (1884)
- var. **nigrescens** Fletcher (1903)
- var. **gozora** Boisd. (1870)

Piasus of Boisduval does not belong in this list, as it represents a distinct species of which *sagittigera* of Felder is a synonym. *Pseudargiolus* and *neglecta* are the same thing, as may be seen by examining Mr. Edwards' figures of the two. It is variable in size and the different sizes fly together in the same locality at the same time. *Neglecta* was named from the smaller individuals. *Lucia* is the form from wintering chrysalids and *violacea* represents the darker examples and *marginata* the ones that have the spotting a little less dense in the centre of the underside of the inferior wings. *Quesnellii* has the spots "dark chocolate brown" on the underside. *Nig* is the black or dark brown form and *intermedia* when they are not quite so dark. Mr. Edwards found only males of this but both sexes are probably represented. *Cinerea* is small and grey underneath. *Argentata* is slightly silvery below like some specimens of *argiolus*. *Gozora* is the common form found south of the United States. *Echo* is the Pacific Coast form and the Arizona specimens are often quite dark in color. *Nigrescens* is the Pacific Coast form from wintering chrysalids.

I see no advantage in retaining so many names for slight differences, as they are very confusing and often take many hours of patient study to find out what they mean. Many more names of equal value to those already proposed could be given but they would only add to the confusion. I have accepted the genitalic work of Mr. R. C. Williams, Jr., who says that *pseudargiolus* and *argiolus* have identical genitalic structures and he believes they are one species.—HENRY SKINNER.

The Thomas Say Foundation.

The Entomological Society of America at its Philadelphia meeting, in December, 1914, established the Thomas Say Foundation for the publication of works dealing with American insects. These works are to be limited to those of a monographic or bibliographic character and to be of such size as to make a separate volume of one hundred or more pages. J. M. Aldrich, Nathan Banks, E. P. VanDuzee, Morgan Hebard (Treasurer) and Alex. D. MacGillivray (Editor) were

appointed a temporary committee with power to solicit funds, to choose works for publication, to determine the form of the publication, and to print such volumes for which the committee has funds and which it considers worthy of publication.

The committee on publication must have funds before the publication of such a series of volumes can be inaugurated. With the consent of the Executive Committee of the Entomological Society of America, the committee of the Thomas Say Foundation are sending the following appeal and proposition to the members of the Society.

It is agreed that those persons who will make a preliminary subscription of ten dollars ($10.00) towards the Thomas Say Foundation are to be considered charter subscribers and are to receive such volumes as the Foundation may issue, equivalent to the amount of their subscription. The Executive Committee of the Entomological Society of America also authorizes the publication committee of the Thomas Say Foundation to guarantee to those persons making a subscription of ten dollars, that in case no volumes of the Thomas Say Foundation are issued, they shall be freed from the payment of all annual dues to the Entomological Society of America for a period of five years or for an amount equivalent to their subscription.

It is hoped that all persons who are interested in the development of such a series of monographs and catalogues of American insects as is contemplated in the Thomas Say Foundation will aid the Committee.—MORGAN HEBARD, *Treasurer*, Chestnut Hill, Phila., Pa.; ALEX. D. MACGILLIVRAY, *Editor*, 603 W. Michigan Avenue, Urbana, Ill.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

Unless mentioned in the title, the number of new species or forms are given at end of title, within brackets.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London.

For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

1—Proceedings, The Academy of Natural Sciences of Philadelphia. **4**—The Canadian Entomologist. **5**—Psyche. **6**—Journal of the New York Entomological Society. **9**—The Entomologist, London. **10**—Nature, London. **11**—Annals and Magazine of Natural History, London. **21**—The Entomologist's Record, London. **36**—Transactions, Entomological Society of London. **40**—Societas Entomologica, Zurich. **47**—The Zoologist, London. **50**—Proceedings, U. S. National Museum. **68**—Science, New York. **75**—Annual Report, Entomological Society of Ontario, Toronto. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie. **104**—Mitthei-

lungen, Naturhistorisches Museum in Hamburg. **166**—Internationale Entomologische Zeitschrift, Guben. **173**—Die Grossschmetterlinge der Erde, Fauna Americana, von A. Seitz, Stuttgart. **176**—Archiv fur entwicklungsmechanik der Organismen, Leipzig. **184**—Journal of Experimental Zoology, Philadelphia. **189**—Journal of Entomology and Zoology, Claremont, Calif. **193**—Entomologische Blatter, Cassel. **242**—Transactions, The Royal Society of Canada (3d Series), Ottawa. **291**—Proceedings of the Staten Island Association of Arts and Sciences, Lancaster, Pa. **303**—Entomologiske Meddelelser, udgivne af Entomologisk Forening, Copenhagen. **322**—Journal of Morphology, Philadelphia. **324**—Journal of Animal Behavior, Cambridge. **411**—Bulletin, The Brooklyn Entomological Society. **420**—Insecutor Inscitiae Menstruus: A monthly journal of entomology, Washington. **438**—Bulletin of the Illinois State Laboratory of Natural History, Urbana. **447**—Journal of Agricultural Research, Washington. **507**—Occasional Papers, Museum of Zoology, University of Michigan. **508**—Compte Rendu, Seances de la Societe de Physique et d'Histoire Naturelle de Geneve. **509**—Revue Generale des Sciences pures et Appliquees, Paris. **510**—Sitzungsberichte, Heidelberger Akademie der Wissenschaften.

GENERAL SUBJECT. Anon.—The Thomas Say Foundation, **68,** xli, 784-5. **Bethune-Baker, G. T.**—The development of clasping organs in insects, **36,** 1914, cxx-clxviii. **Brues & Melander**—Key to the families of North American insects. An introduction to the classification of insects, 140 pp., 1915. **Buddenbrock, W.**—Ueber das vorhandensein des lichtruckenreflexes bei insekten sowie bei dem krebse Branchipus grubei, **510,** 1915, Ab. 1, 10 pp. **Fabre, J. H.**—(See Lochhead, W.). **Fantham, H. B.**—Insect pests and war, **10,** xcv, 265-6. **Grossbeck, J. A.**—Obituary notice by W. T. Davis, **291,** v, 13. **Lochhead, W.**—Jean Henri Fabre, the French entomologist, **75,** 1914, 61-70. **Luderwaldt, H.**—Insekten- und sonstiges tierleben an brasilianischen Bromeliaceen, **92,** xi, 78-84. **Lyman, H. H.**—Biographical note and list of published papers by C. J. S. B., **75,** 1914, 118-21. **Rivers, John J.**—Biographical note by F. Grinnell, Jr., **189,** vi, 98. **Saunders, William**—Biographical note by C. J. S. B., **75,** 1914, 121-3. **Sjostedt, Y.**—La construction des nids chez les insectes, **509,** xxvi, 85-90. **Wheeler, G.**—A "priority" note, **21,** 1915, 60.

PHYSIOLOGY AND EMBRYOLOGY. Payne, F.—Chromosomal variations and the formation of the first spermatocyte chromosomes in the European earwig, Forficula sp., **322,** xxv, 559-85.

MEDICAL. Anon.—House-flies as carriers of disease, **10,** xcv, 289-92.

ARACHNIDA, ETC. Banks, N.—Two Mexican myrmecophilous mites, **5,** 1915, 60-1.

Banks, N.—New Acarina [9 new], **189,** vi, 55-66. **Moles, M. L.**—A pseudoscorpion from poplar trees, **189,** vi, 81-3.

NEUROPTERA, ETC. Hilton, W. A.—The nervous system of Neanura gigantea, **189,** vi, 95-7. **Hood, J. D.**—Hoplothrips corticis: a problem in nomenclature, **9,** 1915, 102-7. **Kellogg & Nakayama**—A new Trichodectes from the goat, **5,** 1915, 33-5.

Bacon, G. A.—A new sp. of Tullbergia [collis.], **189,** vi, 84-5. **Esben-Petersen, P.**—A synonymic list of the order Mecoptera together with descriptions of n. sps., **303,** 1915, 216-42. **Gardner, R. E.**—Some notes on the distribution of Cinura in the vicinity of Claremont, with description of a n. sp., **189,** vi, 86-92. **Hood, J. D.**—Descriptions of new American Thysanoptera [20 new], **420,** iii, 1-40. **Lloyd, J. T.**—Notes on Astenophylax argus, **6,** 1915, 57-60. **Williamson, E. B.**—Notes on Neotropical dragonflies or Odonata, **50,** xlviii, 601-38.

ORTHOPTERA. Caudell, A. N.—Podisma frigida in Alaska, **4,** 1915, 160. Dendrotettix quercus Packard, **5,** 1915, 52-4. **Davis, W. T.**—Dendrotettix quercus at Yaphank, Long Island, N. Y., **411,** x, 33-4. **Morse & Hebard**—Fixation of single type (lectotypic) specimens of species of American O., **1,** 1915, 96-106.

HEMIPTERA. King, G. B.—The tenth California Kermes, **189,** vi, 100-1.

Davis, W. T.—Notes on some Cicadas from the Eastern and Central U. S., with description of a new variety of C. pruinosa; new sps. from California and Utah [7 new], **6,** 1915, 1-10; 11-21. **Essig, E. O.**—The second Protodiaspis [agrifolia], **189,** vi, 76-80. **Olsen, C. E.**—A capsid new to our fauna, **411,** x, 34-5. **Van Duzee, E. P.**—A preliminary review of the west coast Cicadidae [1 new gen., 9 n. sps.], **6,** 1915, 21-44. **Woodruff, L. B.**—A new Membracid from N. Y., **6,** 1915, 44-7.

LEPIDOPTERA. Anon.—Grundlagen der namensgebung, **166,** ix, 13-14 (cont.). **Bandermann, F.**—Aberrative formen und albinismus bei tagfaltern, **40,** xxx, 18-19. **Callard, M.**—Appetite of slugs for green material, **47,** 1915, 159. **Fielde, A. M.**—A new hypothesis concerning butterflies, **1,** 1915, 93-5. **Forbes, W. T. M.**—Slides of wings of Macrolepidoptera, **6,** 1915, 69-70. **Fruhstorfer, H.**—Ein neues abdominalorgan der Rhopalocera, **40,** xxx, 23. **Gibson, A.**—Variation in the color of the blisters of the hedge-hog caterpillar (Isia isabella), **75,** 1914, 117. **Glaser, R. W.**—Wilt of gipsy-moth caterpillars, **447,** iv, 101-28. **Hargitt, C. W.**—Observations on the behavior of butterflies, **324,** v, 250-7. **Pierce & Metcalfe**—An easy

method of identifying the species of the genus Cnephasis = Sciaphila, **21,** 1915, 99-102. **Pictet, A.**—Reactions thermotropiques chez les insectes (Resume), **508,** xxxi, 54-6. **Reverdin, J. L.**—A hitherto unknown organ in the ancillary appendages of the L., **21,** 1915, 97-8. **Rippon, C.**—The rearing of larvae with special reference to the British L., **9,** 1915, 112-16 (cont.). **Simms, H. M.**—Notes on the cause of the blue coloration of the blue Lycaenids, **4,** 1915, 161-5. **Turner, H. J.**—Gynandromorphs and sex, **21,** 1915, 58-60. **Watson, F. E.**—Some miscellaneous local records of L., **6,** 1915, 70-1.

Schaus, W.—Notes on Costa Rican Heterocera described in the "Annals and Magazine of Natural History," **11,** xv, 501-2. **Seitz, A.**—Syntomidae, **173,** Lief. 62, 33-40. **Swett, L. W.**—Geometrid notes—new sps. and varieties [3 new], **4,** 1915, 155-8.

DIPTERA. Hewitt, C. G.—Observations on the feeding habits of the stable fly, **242,** viii, 37-42. **Johnson, C. W.**—A fly [Rhyphus fenestralis ?] preserved in paper [since 1773], **5,** 1915, 63.

Bergroth, E.—Some Tipulid synonymy, **5,** 1915, 54-9. **Cockerell, T. D. A.**—A fossil fungus-gnat, **4,** 1915, 159. **Felt, E. P.**—Aplonyx sarcobati n. sp., **189,** vi, 93-4. **Johnson, C. W.**—A new sp. of Pseudotephritis, **5,** 1915, 49. **Knab, F.**—Some West Indian D., **420,** iii, 46-50. **Kroler, O.**—Beitrage zur kenntnis der Thereviden und Omphraliden [13 new sps.], **104,** xxxi, Beitr. 2, 29-74. **Malloch, J. R.**—The Chironomidae, or midges, of Illinois, with particular reference to the species occurring in the Illinois River [many new], **438,** x, 275-543. **Smith, H. E.**—A new genus of Tachinidae from the Canadian Northwest, **4,** 1915, 153. **Townsend, C. H. T.**—New Masiceratidae and Dexiidae from So. America, **6,** 1915, 61-8. An Acalyptrate genus of Muscoidea; A polistiform genus of Muscoid flies; A genus of Hystriciinae flies with white maggots, **420,** iii, 41; 43-44; 45-6.

COLEOPTERA. Frost, C. A.—June collecting in Maine, **4,** 1915, 141-5. **Hyslop, J. A.**—Observations on the life history of Meracantha contracta, **5,** 1915, 44-8. **Weiss, H. B.**—Notes on some tropic reactions of Macrodactylus subspinosus, **4,** 1915, 152. **Wheeler & Williams**—The luminous organ of the New Zealand glow-worm, **5,** 1915, 36-43.

Arrow, G. J.—Notes on the coleopterous family Dermestidae, and descriptions of some new forms in the British Museum, **11,** xv, 425-51. **Knaus, W.**—Collecting notes on Kansas C., **411,** x, 35-40. **Leng & Shoemaker**—A new genus and species of Lampyridae, **6,** 1915, 55-6. **Schaeffer, C.**—New Coleoptera and miscellaneous notes [7 new names]; Change of generic names, **6,** 1915, 47-55; 68-9. **Van Dyke, E. C.**—Some new beetles in the families Osto-

midae (Trogositidae) and Cleridae from California [5 new], **411**, x, 25-33. **Wichmann, H.**—Zur kenntnis der Ipiden; III, **193**, 1915, 102-7.

HYMENOPTERA. Boveri, Th.—Ueber die entstehung der eugsterschen zwitterbienen, **176**, xli, 264-311. **Davis, W. T.**—A Long Island ants' nest 18 feet in diameter, **6**, 1915, 69. **Fielde, A. M.**—On certain vesicles found in the integument of ants, **1**, 1915, 36-40. **Nicholson, C.**—Hibernation of Vespa vulgaris, **21**, 1915, 115-6. **Rau, P.**—The differentiation of the cocoons of Pelopoeus caementarius and Chalybion caeruleum, **5**, 1915, 62-3. The ability of the mud-dauber to recognize her own prey, **324**, v, 240-49.

Crawford, J. C.—Descriptions of new H., No. 9 [9 new], **50**, xlviii, 577-86. **Gaige, F. M.**—The Formicidae of Charity Island, Lake Huron, **507**, No. 5, 29 pp. **Mann, W. M.**—A new form of a Southern ant from Naushon Island, Massachusetts, **5**, 1915, 51. **Wheeler, W. M.**—Neomyrma versus Oreomyrma, **5**, 1915, 50.

Doings of Societies.

Entomological Section, Academy of Natural Sciences, Philadelphia.

Meeting of May 27, 1915. Mr. Philip Laurent, Director, presided. Ten persons present.

Odonata.—Dr. Calvert said that in 1902 Mr. V. A. E. Daecke had seen, but not taken, near Lucaston, New Jersey, a dragon fly, which the speaker supposed from the description to be *Anax longipes*.* On June 15th, 1914, a female *longipes* was taken at Clementon, N. J., by Mr. D. W. Steckbeck, Instructor in Botany at the University of Pennsylvania. The specimen was exhibited.

Arachnida.—Dr. Skinner exhibited specimens known in Texas as the "adobe bug." It is *Argas miniatus*, a tick, very injurious to poultry. Mr. Rehn said he had seen the species in great abundance in a chicken house in Texas. Mr. G. M. Greene exhibited a living whip-tail scorpion from Florida and remarked on the vertical position in which the filamentous tail was held whenever the animal was aroused.

Lepidoptera.—Dr. Skinner exhibited the variations of *Lycaena pseudargiolus* and commented on the multiplicity of names for the species. Mr. G. M. Greene exhibited *Alypia octomaculata* from Mt. Moriah, Delaware County, Pennsylvania.

Orthoptera.—Mr. Rehn said he had been studying African roaches and referred to the varying length of the tegmina in certain forms and concluded that the variations represented but a single species.—HENRY SKINNER, *Recorder*.

* See Ent. News, xiv, p. 35, Feb., 1903.

American Entomological Society.

Meeting of April 22, 1915. In the absence of the President, Mr. Philip Laurent was called on to preside. Eight persons present.

Lepidoptera.—Mr. Daecke exhibited *Phalonia schwarziana* Busck, Wildcat Falls, Pennsylvania, VI, 6, 14, and *Salebria intermedialis* Walk., Riverview, Pennsylvania, VI, 23, 14. Mr. Williams exhibited the genitalia of *Anosia berenice* and *plexippus*, also the retractile tufts from the end of the abdomen; the tufts of *berenice* are much the larger. He also exhibited the "Butterfly Babies Book," which represents well known species of butterflies in an interesting way for children.

Odonata.—Mr. Daecke said he had observed a dragonfly, *Hagenius brevistylus*, carrying a female *Papilio turnus* and chewing it. —HENRY SKINNER, *Secretary.*

Los Angeles Entomological Club.

The Los Angeles Entomological Club will meet on the first Thursday evening of every month, during 1915, in the Music Room of the Los Angeles Public Library, 9th floor of the Metropolitan Building, Los Angeles, California. All entomologists are welcome.

Meeting of Jan. 7, 1915. Seven persons present.

Lepidoptera.—Mr. H. Newcomb exhibited some of his butterfly jewelry, which consists of *L. exilis* with part of a *Morpho* as background, mounted in gold and rock crystal. Mr. F. Grinnell, Jr., exhibited a collection of Lepidoptera, which he took in the high Sierras.

Meeting of February 4, 1915. Five persons present.

Hymenoptera.—Mr. Lonzo Smith spoke about his experiments with cross-breeding of the Italian and Black bees, with reference to increase in length of tongue.

Meeting of Mar. 4, 1915. Thirteen persons present.

Lepidoptera.—Mr. Haskin read a paper for publication in the "News" treating of *Lycaena piasus*, and *L. sagittigera*. Mr. Keil exhibited an interesting aberration of *Vanessa antiopa*, in which three wings were normal, while the left secondary had a very wide yellow marginal band and was without the blue markings. V. Duran exhibited a collection of butterflies from Argentina and pointed out the similarity of the Argentine Lepidopterous fauna to that of the Southern United States. Of the twenty-three species received, ten are found in this country; they are: *P. monuste, C. eubule, J. lavinia, P. carye, L. carinenta, C. lacinia* form *saundersii, C. ceneus, T. simaethis, P. phylaeus* and *C. ethlius.*

Meeting of April 1, 1915. Twelve persons present.

Mr. W. D. Duane gave a short talk on his recollections of Herman Strecker, Philip R. Uhler and Charles V. Riley, and some of his experiences collecting insects and orchids along the Amazon.

Lepidoptera.—Mr. V. Clemence exhibited a collection of *Neophasia menapia, N. terlooti* and *Anthocharis cethura* var. *morrisoni.* Mr. J. Graf spoke about the Tuber moth, of which he has found six parasites.

Hymenoptera.—Mr. E. Barrett said a few words about a chalcid fly, the larvae of which live in the seeds of alfalfa.

V. G. DURAN, *Acting Secretary.*

Feldman Collecting Social.

Meeting of April 21, 1915, at the home of Wm. S. Huntington, 1910 N. 21st St., Philadelphia. Twelve members and two visitors were present. President Wenzel in the chair.

Dr. Skinner spoke of those who were collectors only but did not publish the results of their observations and work. He thought if there was more specializing and investigation in the line one was interested in and the results published, it would be best for all entomologists; it was all right to collect, but one should specialize. He cited several entomolgists who did good work in gathering a collection but published nothing. Mr. Wenzel said he had had no idea of the amount of time that would be involved when he started adding to his grandfather Feldman's collection, but the collection has grown to such a size that it taxes all his time to attend to the specimens alone.

Homoptera.—Mr. Daecke exhibited *Cicada noveboracensis* Em. from Morris, Pennsylvania, VI, 8, '11, and McAlisterville, Pa, VI, 10, '11, and *C. davisi* Grossb. from Anglesea, New Jersey, VII, 29, '11. The latter was collected by H. W. Wenzel, in the clutches of a *Paratenodera sinensis* Sauss.

Lepidoptera.—Mr. Daecke exhibited *Holcocera modestella* Clem. This species was known to breed from acorns. He has bred it from same and also chestnut, Inglenook, Pennsylvania, VII, 26, '14, and VIII, 16, '14.

Coleoptera.—Mr. H. A. Wenzel mentioned finding a chestnut tree at Beechwood, Delaware County, Pennsylvania, III, 21, '15, evidently felled only last year. Under the bark he found the workings of *Xyleborus inermis* Eichhoff, in which were dead and living imagos.

Diptera.—Also found under the same bark pupae of a Dipteron, which he had taken home and bred. These were exhibited and identified by Mr. Harbeck as an Ortalid, *Pseudotephritis corticalis* Loew.

Adjourned to the annex.—GEO. M. GREENE, *Secretary.*

EXCHANGES.

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Specimens collected—Will collect Diptera, Hymenoptera, Ichneumonidae, Odonata, Hemiptera-Homoptera, Coleoptera or Lepidoptera during the coming season. Let me know your desiderata now.—Harry L. Johnson, So. Meriden, Ct.

I will name specimens of Coleoptera in certain families. Correspondence with beginners desired. No specimens will be retained without permission of the owner.—C. A. Frost, 26 Pond St., Framingham, Mass.

Wanted Transactions American Entomological Society, Vol. IV; Entomological News, Vol. II, Nos. 6 and 10, or Volume.—Howard L. Clark, Hotel Puritan, Commonwealth Ave., Boston, Mass.

I have a number of duplicates of entomological Exp. Station Bulletins, Entomologist's Reports, Bureau Bulletins and Circulars, etc., for exchange or sale.—Geo. G. Ainslie, 227 Peachtree St., Nashville, Tenn.

Will exchange eggs of *Hemileuca maia* for native or exotic Lepidoptera and Coleoptera and Cicindelidae. Send your lists.—Adolph Mares, 2524 So. Homan Ave., Chicago, Ill.

For Exchange—*Catocala titania* Dodge for other species of same genus not in my collection. Send list and name terms to Ernst Schwarz, 6310 N. Newstead Ave., St. Louis, Mo.

Wanted—Six dozen cocoons *Cecropia;* 500 each Ova *luna* and *polyphemus*. Lowest price.—I Rushton, 10 Carlton Road, Worksop, Notts, England.

Siphonaptera wanted.—I desire to secure specimens of fleas from various parts of the world for determination. Host records important.—F. C. Bishopp, Box 208, Dallas, Texas.

Wanted—Showy American diurnals in papers, especially Papilios in numbers. Offered British Lepidoptera and Coleoptera and British colonial stamps.—A. Ford, 36 Irving Road, Bournemouth, England.

Specimens collected—Will collect in all orders this coming season.—J. Burns, 1804 Tenth St., Sacramento, Calif.

Wanted—Transactions American Entomological Society, complete set, except Vols. 1 and 2; Entomological News, Vols. 2 and 6.—Wm. S. Marshall, University of Wisconsin, Madison, Wis.

Many species of butterflies and moths for exchange.—American Entomological Society, Logan Square, Phila., Penna.

Desired—Copies of the following publications: Cramer, Pap Exot.; Drury, Illustr. Ex. Ins.; Burmeister, Descr. Rep. Argent. V, 1878; Swinhoe, Cat. Lep. Het. Mus. Oxford, 1892. State price.—B. Preston Clark, 55 Kilby St., Boston, Mass.

Wanted for cash or exchange—Neuroptera, especially Dobson, Stone and Caddice Flies; Hemiptera, larger species, *Belostoma*, Ambush Bugs, etc.; also *Papilio cresphontes, P. ajax, Act. luna, Cith. regalis, E. imperialis, Datana ministra, Anisota senatoria* and other Noxious and Beneficial Insects with their Life Histories, etc.—The Kny-Scheerer Co., New York.

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717.—**Hebard** (M.).—The genus Hygronemobius, with the description of one new species. (Ent. News, **26**, 193-199, 1 pl., '15) ..... .20

718.—**Cresson** (E. T., Jr.).—A new genus and some new species belonging to the Dipterous family Bombyliidae. (Ent. News, **26**, 200-207, fig., '15) ..... .15

719.—**Merrill** (J. H.).—On some genera of the Pimpline Ichneumonidae. (**41**, 109-154, 3 pls., '15) ..... .75

720.—**Rehn & Hebard.**—Studies in American Tettigoniidae. V. A Synopsis of the species of the genus Conocephalus found in North America north of Mexico. (**41**, 155-224, 6 pls., '15) 1.25

721.—**Ramsden** (C. T.).—Juan Gundlach. (Ent. News, **26**, 241-260, 2 pls., '15) ..... .35

722.—**Weiss** (H. B.).—Additions to insects of New Jersey. No. 2. (Lep.). (Ent. News, **26**, 260-262, '15)..... .05

723.—**Braun** (A. F.).—Notes on some species of Tischeria, with descriptions of new species. (Ent. News, **26**, 271-273, '15) ..... .05

724.—**de la Torre Bueno** (J. R.).—Heteroptera in beach drift. (Ent. News, **26**, 274-279, 15) ..... .10

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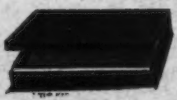

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